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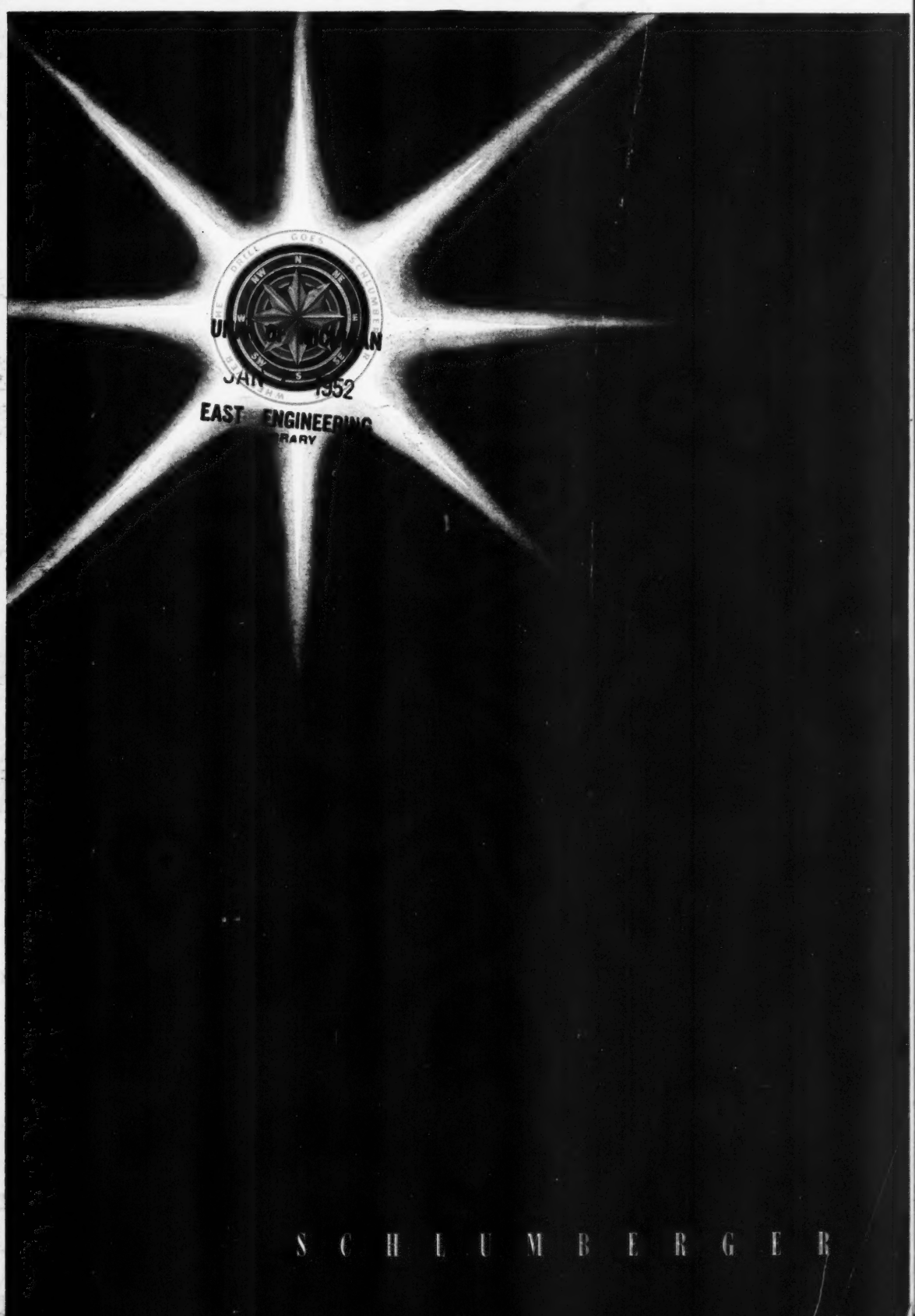

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DECEMBER 1951

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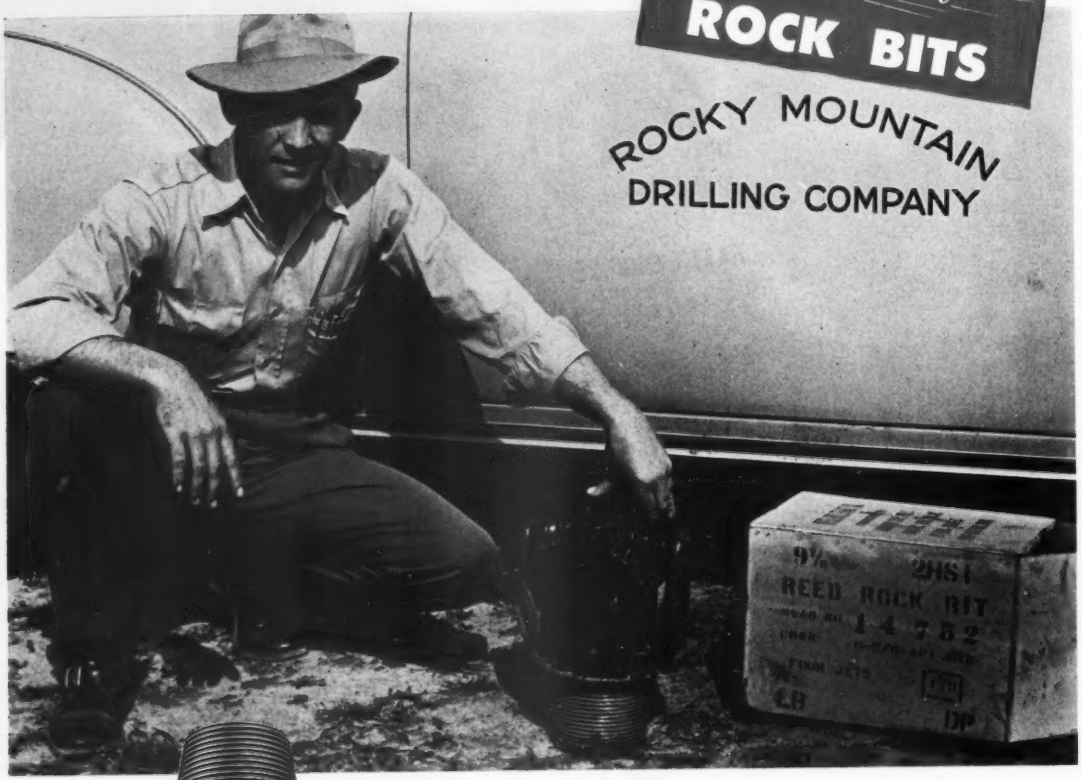

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Washington Highlights

Information received here from Ottawa, Canada, indicated that two oil pipeline companies had withdrawn applications for permission to build lines to transport oil from the fields in Alberta province to the West Coast. The withdrawals were made by Independent Pipe Line Company and Westcoast Transmission Company as the Canadian board of transport commissioners opened hearings on applications from five companies which were competing for the rights to the Alberta-Vancouver route.

Russell B. Brown, general counsel for the Independent Petroleum Association of America in Washington, reported that exploratory conferences have been held with the Office of Price Stabilization on procedure that will be required in the study of crude oil price ceilings. Uncertainties as to what standards should be applied to price ceilings for oil and gas have existed due to changes in the law during the recent Congress. Brown pointed out that throughout the American petroleum industry there is continuing recognition of the need for a more realistic attitude toward crude oil prices. These prices generally have remained constant for a period of about four years, he explained and added:

"They were established by action of a free economy, and, therefore, must be recognized as proper prior to the Korean emergency. However, the freezing of price ceilings on crude petroleum and the failure to recognize changed conditions may result in great harm in the continued production of necessary petroleum."

Senator John L. McClellan, Democrat of Arkansas, regards free-spending Federal policies and dishonest campaign promises to blame for "a lot of the corruption in government."

Allocations of oil country tubular goods for the first quarter of 1952 have been announced by the Petroleum Administration for Defense. The PAD also has called attention to the fact that oil and gas operators seeking to purchase tubular goods produced from conversion steel for delivery during the first quarter of next year, will be required to apply such purchases against the regular first quarter allotments from the Petroleum Administration.

Reports that General Matthew B. Ridgway has been subject to recurring heart attacks were described by the Army Department as completely untrue. The Allied Commander in Korea and the Far East informed Secretary Pace that he had never enjoyed better health.

Actual figures for capital expenditures are not available, but the oil industry's combined outlay for property, plant and equipment should be substantially more during the full year current than the amount expended in 1950.

The Armed Services have been advised by the Petroleum Administration for Defense to change their purchases of oil products from the West Coast to the Gulf Coast. The diversion was evidently needed to prevent a shortage threatened in petroleum products in the region west of the Rocky Mountains. The PAD's recommendation was agreed upon at a meeting of West Coast oilmen in Los Angeles. Two choices were considered at the meeting. The first was to transport more crude oil or refined products to the Pacific Coast with a price boost for both civilian and military purchasers. That, however, was analyzed by the PAD as seemingly inconsistent with price stabilization objectives and would penalize one section of the country because of a nationwide emergency in defense. The second choice was to advise the Defense Department to obtain a larger portion of the Pacific district petroleum requirements from points other than the West Coast until local shortages are remedied. In the light of all this, many California oil leaders are understood to be puzzled by the continuing clamp on full scale production at Elk Hills.

About Engines — Mostly Temperatures

By O. B. FREEMAN
Tide Water Associated Oil Co.

During the war years, the oil industry had few, if any, young men added to field and plant personnel. However, during the past few years there has been quite an influx of young men into our ranks.

These men will soon start replacing the gray beards now seen around the jobs.

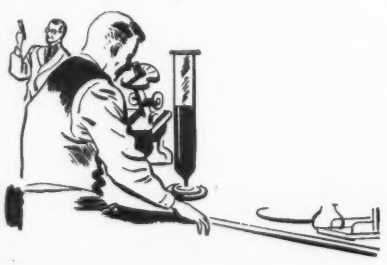
With this thought in mind, and feeling the importance of training men for shift operators and mechanics, your program committee has requested that this paper be written for the benefit of the "men with grease under their finger nails" and especially the younger men.

So for once, the bosses and swivel chair polishers are given a back seat.

Engine Types

Engine types can be divided in several ways. First we may divide all engines into two types, two and four stroke cycle, or as is commonly called, two and four cycle engines. Primarily the two cycle engine is probably the simpler of the two. In this engine, the fuel charge is ignited at the top of each piston stroke. The force of the burning fuel charge drives the piston down the cylinder. Near the bottom of the stroke, ports or holes in the side of the cylinder are uncovered by the down travel of the piston and through these ports the burned gases are allowed to escape. As the piston starts its upward travel, fuel gas and air are forced into the cylinder under low pressure. Continued upward travel of the piston compresses the fuel charge and when the piston reaches the top of the stroke, the engine is ready for the electric spark to ignite the charge and start the operation all over again. Thus we have the complete cycle of operation in two piston strokes, or as we say, two stroke cycle.

The other main type is the Otto cycle or four cycle engine. In this engine four strokes of the piston are required to complete the cycle instead of the two strokes just discussed. This theory of operation was developed by a German named Otto many years ago. At the time of its inception, fuel as we know it did not exist. So the old fellow reasoned somewhat like this; if a piston was made to move up and down in a cylinder with the lower end of the piston connected to a rotating shaft through a connecting rod it could be made to do useful work. Starting at the top of the stroke he would have the piston draw some kind of fuel, he did not know what, into the cylinder by the vacuum created by the downward travel of the piston. As the piston travelled up on this revolution it would compress the fuel so that when it reached the top of the cylinder, it could be ignited by some kind of a spark, although he did not know what kind. The expansion of this explosion would force the piston downward and on this stroke the useful work would be done. Then on the following upward stroke the burned gases could be forced out of the cylinder through some kind of valve or port, leaving the cylinder empty and clean for the next charge. These four strokes primarily describe the operation of the four cycle engine or the Otto Cycle. Two and four cycle engines are further subdivided into different classifications applicable to both. Each may be divided into heavy duty or automotive types. Since in the oil industry we use few automotive engines, we will consider only the heavy duty type. The heavy duty may be divided into single cylinder, twin cylinder and multi cylinder according to the number of cylinders used in the make up of the engine. These types may again be divided into air cooled and water or liquid cooled, according to the method used in cooling the engine.



Engine Trends

It might be of interest to the younger men present today to note briefly the trend of engine types used in the oil industry during the past 30 years.

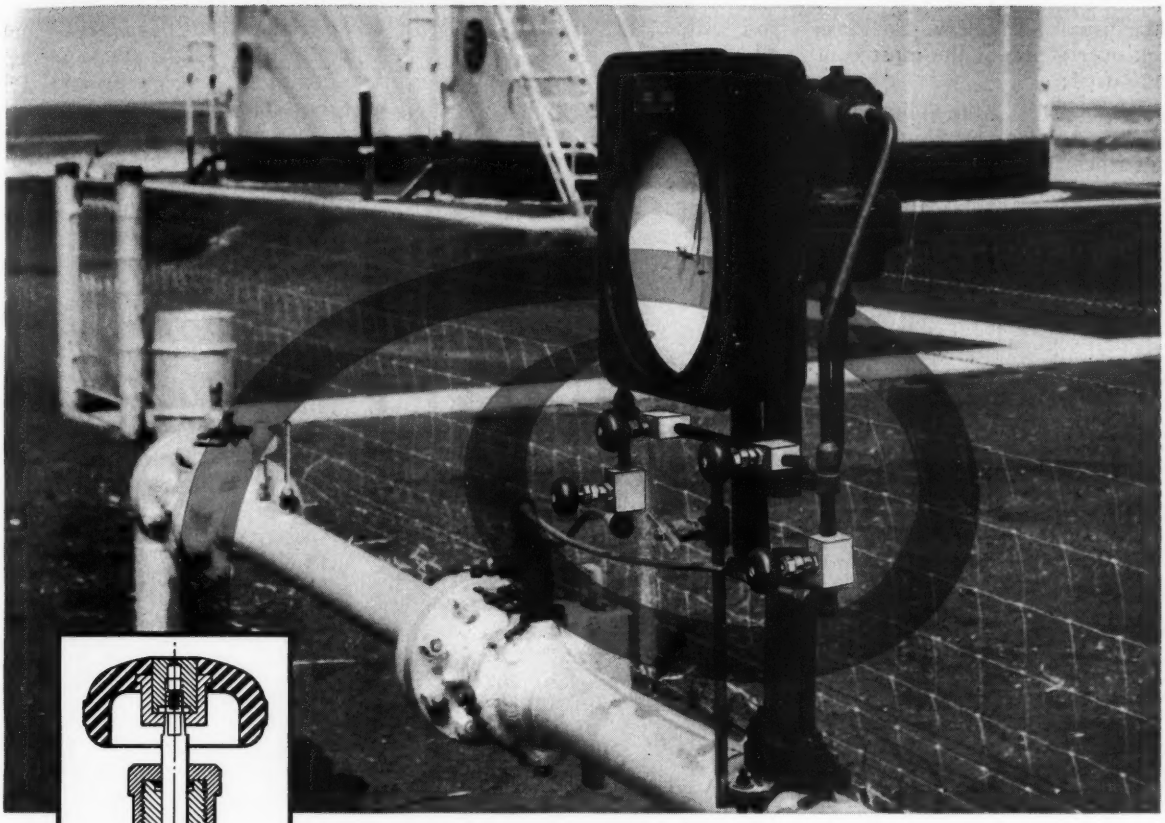
In the early days of gas compression in the California fields, compressor engines of five hundred to one thousand horse power were the rate. Such compressors as the Snow, National Transit and Cooper Tandem were typical of the day. These were huge piles of pig iron, heavy and slow moving and operating at low temperatures and pressures. These were found to be too large for economical operation in the producing field and the industry swung to the opposite extreme. During the early 1920's, single and twin cylinder compressors of 80 to 200 horse power and running at around 200 RPM became the rule. These were found to be too small for economical operation. We now use mainly multi cylinder compressors of 300 to 600 BHP operating at a speed of three to five hundred RPM.

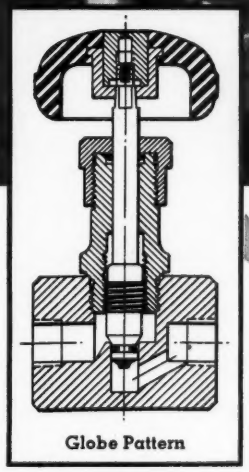
The standard pumping engine of 30 years ago was a large single cylinder engine, slow running, heavy and crude. In time, these gave way to the small compact multi cylinder engine, of either the industrial or automotive type.

This situation exists today except for the advent into the field of several makes of one and two cylinder engines in the smaller sizes. These one and two cylinder engines are small, compact and well streamlined and operate at two to three times the speed of their early day predecessors. They also supply smooth power at low cost where power requirement is small.

Basic Trends

The young man who wants to get ahead in our industry will need to do a great deal of reading and studying in order to have something to supplement his practical experience on the job. He will immediately run into a lot of letters and terms relating to engines that are foreign





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to the usual vocabulary. So let us check over a few of the most commonly used:

RPM—This is the abbreviation for "Revolutions per minute" and describes the speed of an engine.

BHP—This means brake horse power and represents the power put out by the engine at the clutch shaft or power take off.

HP—This is the horse power generated within the cylinders by the fuel burned. It includes BHP plus the power lost within the engine due to drag and friction.

MEP—This is the abbreviation for mean effective pressure. It is the average pressure expressed in pounds per square inch exerted by the burning gases upon the piston of an engine during the working stroke of the piston.

BMEP—is the abbreviation for brake mean effective pressure. It is MEP less the amount of power used within the engine itself.

Engine Torque—is the rotating or twisting effort exerted by the crank shaft of a running engine. This force is measured 12" from the center of the shaft and is expressed in units of pound—feet.

A **foot pound** is the amount of energy required to raise one pound a height of one foot.

One **horse power** is 33,000 foot pounds of energy developed or expended in one minute.

PSI—is the abbreviation for pounds per square inch. It is used in measuring pressure while ft. lbs. and HP are used in measuring power exerted in movement.

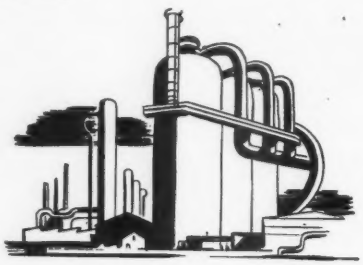
Btu—means British thermal unit. One Btu is the amount of heat required to raise one lb. of distilled water one degree Fahrenheit at sea level.

PD—is piston displacement. It is the number of cubic inches displaced by all the pistons of an engine during one revolution of the crank shaft. The PD, or piston displacement, is used in describing the size of an engine and calculating horse power output.

Ft./min. piston speed represents total travel of any one piston up and down its cylinder, expressed in feet per minute.

Engine Loading

The load carried by an engine is based on the BMEP at the RPM you wish to run the engine. Most oil well pumping engines built in recent years give best results when operated at 60 to 65 lbs. BMEP. This represents about 65% of the maximum power output possible at the RPM you are running the engine, and is the recommended API loading.



This operating condition is also true of most engines used to drive oil and water pumps in gasoline plants and refineries.

Compressor engines and engines used to drive pumps in pipe line stations are more heavily built and will work more economically at much higher loads.

The above presupposes constant load operations. Intermittent loads may be permitted up to 80% of the maximum power that can be developed by the engine without creating undue wear.

It is not necessary to have a lot of instruments to measure BMEP when operating an engine in the field. A vacuum gauge or mercury u-tube attached to the engine intake manifold will tell you all you need to know.

When a vacuum gauge or mercury u-tube are so attached, an engine in good condition should show a reading, unloaded and idling of 19" to 21" vacuum. When loaded, a multi cylinder engine on constant load should have about 10" of vacuum. This will correspond to a recommended API load. A vacuum of less than 10" shows your engine approaching an overload. Under this condition, one of two things should be done. First, you may change the pulley or gear ratio so as to speed up the engine without changing speed in the driven machine. Secondly, if the engine is already running at maximum speed, it is overloaded, too small for the job, and must be replaced with a larger engine if you are to get maximum operating economy.

If on the other hand, the vacuum reading is too high, say 12" to 15", the engine is underloaded. This high vacuum will pull oil up past the piston ring and through the valve guides. The resulting carbon will foul and damage the engine. In this case you may get the vacuum to the desired height by slowing the engine without slowing the driven machine.

However, if the engine is already running at the minimum speed recommended by the manufacturer, your job is over-engined and should be replaced with a smaller engine.

Our method of selecting engines for an oil well pumping job is to first calculate as close as possible the power required. An engine is then purchased that will handle this load with 9" to 10" vacuum at the lowest RPM recommended by the manufacturer. If the load increases in later years due to lowering of the oil level, water encroachment and gas depletion you can change the belt pulleys so as to speed up the engine and remain on the API loading or as we have said, keep the manifold vacuum of around 9" to 10".

If we are selecting an engine for plant work such as pumping water or absorption oil, we will expect the load to remain constant so we will purchase an engine that will handle the load at 9" to 10" when running at the most efficient recommended speed.

Selecting such an engine is easy as it is a simple matter to calculate the load on a plant pumping job.

However, selecting the correct engine for an oil well pumping job is much more difficult due to the large number of unknown factors that can and do enter into the power requirements for lifting oil from the well.

The above method of engine selection and operation applies to four cycle multi cylinder engines only. In the case of two cycle engines, the load must be determined and adjusted by the exhaust gas temperature.

This is done by means of thermocouples installed by the engine manufacturer. On the present design of single cylinder, four cycle engines, manifold pressure cannot be used in determining loading.

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Our field method when selecting a single cylinder engine is to select the size according to the manufacturers horse power curves. After the pumping unit is put into operation a dynamometer reading is taken of the polish rod load and on the basis of this plus the general appearance of the engine performance, we decide whether or not we think the engine fits the job.

Another way of arriving at the load carried by such an engine would be to calculate horse power from fuel consumed. This may be done with fair accuracy.

Low Temperature Operation

In defining engineering terms a few minutes ago, one term was purposely left out that has only recently come into common use in connection with engines. That term is "Dew point."

Webster defines dew point as "the temperature at which vapor becomes a liquid."

In my opinion dew point, next to clean lubrication, is perhaps the most important single item in engine operations.

Yet a few short years ago such a statement would have earned for you the reputation of having "wheels in your head."

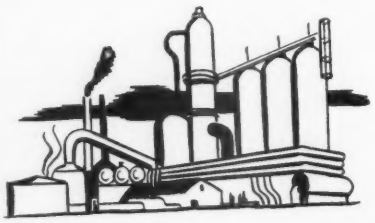
There are definitely three different dew points to be considered.

First is the dew point of the exhaust gases. Laboratory tests have shown that it is possible for this point to go as low as 120°F.

In case you get below the dew point in your exhaust gases, these gases coming into contact with the walls of the exhaust port, will deposit water in considerable quantities on the metal. When you consider that exhaust gases contain in the neighborhood of 13½% water by volume, you begin to realize what large amounts of water can be condensed and dropped out. On a large heavy duty engine running cold, many of you "old timers" here today have seen regular streams of water running down the exhaust valve stems, on past the cam followers and into the crank case to emulsify and sludge the oil.

The answer to this problem is, "get your engine hot."

The second and more dangerous dew point is that of the cylinder walls. Laboratory tests have shown this temperature to be 190°F. Most water found in crankcases comes from this source. If your cylinder walls run to cold, water condenses on them and is wiped down by the piston rings to fall with and contaminate the lubricating oil. The answer again is "get your engine hot."



The third dew point is the "watch dog," the most important of all. This is the dew point of the crankcase oil. This temperature is in most engines 140° F. We have run tests on a two cycle 800 BHP compressor engine with the following results. At 140° water continued to build up in the bottom of the crankcase. At 143° the water remained static and at 145° water already in the crankcase begins to evaporate. In order to have a margin of safety, we have set 150°F as the absolute minimum temperature of compressor crankcase oil.

If this rule is observed, you will be guarded against most but not all harmful results of too low an exhaust gas or cylinder wall temperature.

In taking the crankcase temperature, be sure that your thermometer is in the main body of oil and not in the mist of oil and blow by gases higher up. The crankcase temperature of most modern compressors is controlled by controlling the temperature of oil going to the oil bearings. The average temperature pick-up of oil between the oil cooler and the crankcase is around 15°F.

Consequently, to get the desired 150°F plus in the crankcase, we allow our oil to leave the oil cooler at a minimum of 135°.

In a multi cylinder pumping engine and especially one of automotive type with sheet iron oil pan, the above temperatures are entirely too low. These engines are usually installed out of doors and are affected by wind and weather. I have seen such an engine lower its crankcase oil temperature as much as 20° in a few minutes time due to an increase in wind velocity or direction.

On an automotive type engine inside a building, you may lower the pan temperature 10° by opening a nearby door allowing wind to blow over the engine.

As a result, we consider 165°F an absolute minimum crankcase temperature, 180° is better. For best performance, keep your engines "hot in the attic and hot in the basement."

We have been considering minimum temperatures so the next thought is, what are the allowable top temperatures?

There are so many different temperatures affecting lubricating oils that it is very difficult to select a yard stick.

In the firing chamber we have a peak temperature of probably 4000° F forcing heat into the piston head. Oil splashes up under the piston, is super heated where some of it is broken down. The mist of oil in the upper part of the crankcase is of course hottest at the top. As you go lower, this hot oil mixes with oil wiped off the hot cylinder walls, blow by gases, and colder oil splashed up from the pan. The result is a constant temperature gradient from top to bottom.

The villain in this case is the oil splashing against the under side of the piston head. Here oil is reduced to coke, some of the coke falling to the bottom of the crankcase. Other oil is oxidized.

In this oxidation process, alcohol is first produced and being very unstable, it soon breaks down under high temperature to form corrosive aldehydes, gum, varnish, and lacquers.

Presence of air in the crankcase tends to increase oxidation. For this reason a high temperature engine should not be scavenged to the point where blow by gases are replaced by air, such as is permissible and desirable in a low temperature engine.

At first the sludge of oxidation is clear as is shown by almost clear varnish deposited on piston walls of hot running engines. Later this sludge turns black, resembling carbon. It is equally as harmful as low

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temperature sludge. In oil analysis it frequently is called carbon sludge. From the above it would appear that it is piston temp. and not crankcase oil temperature that is our deciding factor.

Since, however, it is not practical to check piston temperatures in the field, and crankcase oil temperatures are mainly controlled by piston temperature, we use them as an indicator.

In actual practice and laboratory tests we have found that we can get reasonably good oil life and oxidation control so long as we keep our crankcase below 250°F. Careful crankcase scavenging and use of heavy duty oil are also desirable with all high temperature operations.

Bearing Lubrication

Oil has two duties to perform on bearings. First to lubricate and second is to wash heat away.

There are more heat failures of bearings due to the latter than from lack of lubrication.

The tensile strength of tin base babbitt at 100°F is 10,000 lbs./sq.in. while at 260° it is 5,000 lbs. This is quite a decrease in strength, but since we have already stated that oil should be kept under 250°, we need feel no undue concern. Further bearing out of this conclusion is the fact that many diesel engines are in operation today with oil temperatures at 230° to 240° when under full load.

However, most all phases of lubrication are controversial and to mention lubricating oil usually means to start a dog fight.

High Temperature Operation

From the standpoint of engine performance, there is little to be gained by raising temperatures beyond a safe distance above the various dew points. It is true that the thermal efficiency of an engine increases with an increase of over all temperature, but with our cheap fuel in the oil producing areas, this becomes of minor importance.

However, the one thing that is giving increased importance to high temperature operation is the desire to salvage waste heat from our engines.

In the years past we have been content to utilize 25% to 30% of our engine fuel in doing useful work.

The rest of the fuel being wasted by being dissipated in jacket water and exhaust gases.

Today we are demanding useful work from 70% to 80% of our engine fuel. This waste heat recovered is used in heating power oil in Kobe installations, crude oil entering dehydrator plants, and for space heating in shops, offices and any other buildings where heat is desired.

To salvage this waste heat at workable temperatures, the engines are usually run with a jacket water temperature of around 225°F. This high temperature cooling may be done by putting pressure on your water system and keeping it in the liquid phase. In this method, waste heat boilers are placed on the exhaust line and jacket water is passed through them. All the water then goes to a heat exchanger and is used for heating purposes.

All the heat of the fuel is utilized except a small part which gets away in the exhaust gases plus a still smaller amount lost through radiation.

An over all thermal efficiency of 75% and more is easily achieved. Like the meat packer who uses all the pig except the squeal, we lose but very small squeal.

Another method of high temperature engine cooling is steam cooling or cooling in the vapor phase.

This is accomplished by using the latent heat of vaporization instead of direct transfer of heat from cylinder walls to water as in usual liquid phase cooling.

In steam or vapor phase cooling, small bubbles of steam form on cylinder walls, absorbing heat from and cooling the walls. This action is similar to that of a boiling tea kettle. You have all observed how a kettle boiling furiously, will have the heat taken away from its bottom so fast that the bottom will be the coolest part of the vessel. On the above basis it is reasonable to suppose that the cylinder walls of an engine so cooled, will be cooler than walls cooled by direct heat transfer.

In actual practice, the steam and water leave the engine together, pass up and into a box where more of the water flashes to steam. The water then returns to the engine to repeat its cycle. The steam is trapped out and goes to a condenser, heat exchanger, radiator or any other equipment where it is needed.

In this equipment, the steam is condensed and the condensate either gravitates or is pumped back into the system.

In operating an engine or battery of engines with steam cooling, an interesting condition may be demonstrated by varying jacket water velocity.

By starting with a low water velocity, practically all the engine heat will be absorbed by vaporization within the water jackets. Thus a large volume of steam passes to the vapor phase unit and to the heat exchangers or condensers. Now by increasing water velocity, less time is allowed for formation of steam in the jackets and because of this, a larger direct pick up of heat is made.

As a result, some of the water flashes to steam, in the vapor phase unit, the original temperatures are maintained and the same amount of steam and heat passes out to the heated equipment. If the water velocity is now stepped up sufficiently, no steam will have a chance to form in the jackets, the cooling will be in the direct or liquid phase and if the velocity is sufficiently high, water temperature leaving the engine will drop. However, on entering the vapor phase unit, sufficient water will flash to steam to account for the heat picked up in the engine. This results in the same amount of steam passing to exchangers or condensers as in both previous cases and without any change in heating value. Thus, we see a phenomena of high temperature in which the engine is cooled in the liquid phase while its heat is dissipated in the vapor phase.

In years past, money was spent to dissipate engine heat at the conventional plant pumping Kobe oil or crude oil to dehydrators. Then more money was spent to operate boilers heating oil being pumped. Now un-

(Continued on page 33)

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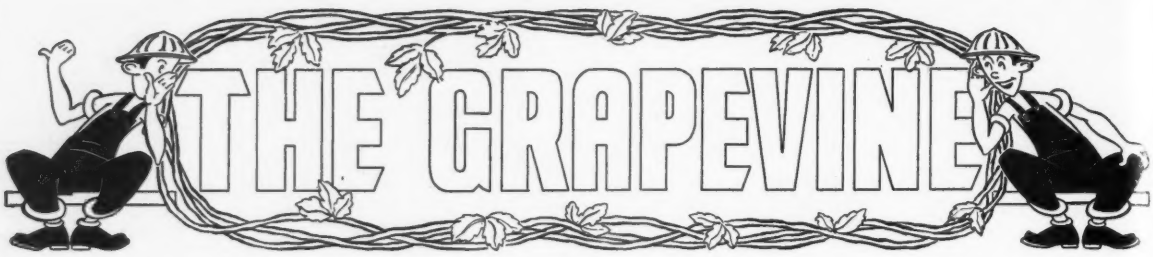


The existence of the Desk & Derrick Club marks the complete emancipation of the long erroneously termed weaker sex and one of these days we suspect the bosses are going to be sorry for their unqualified endorsement of the D & D movement. In the dim past and indeed until comparatively recently a secretary was a somewhat shy repository for all the business secrets of the boss. She was unassuming, demure, industrious and wholly satisfied to be just considered a useful member of the staff. She had no aspirations excepting sooner or later to give up her position and settle down to a life of married humdrum or bliss as the case may be. But things are not like that now'a-days. The modern secretary has more ambition than a preliminary fighter and marriage has become distinctly a secondary consideration in her plans.

We have a strange feeling that the relationship between bosses and secretaries is in the process of being reversed and that before too long the gals will be sitting in the swivel chairs while the mere males sit on their laps taking dictation. Already we have female oil executives, drilling contractors, geologists, physicists, chemists, engineers, machinists, truck drivers, and what have you, ordering their male subservients about like so many army sergeants. It is an embarrasing situation but there seems to be little doubt, nonetheless, that the female of the species is once more on her way to making her so-called lord and master look like the traditional thirty cents and in using that figure we are being mighty generous.

All of this philosophising follows our attendance at the Desk & Derrick Club cocktail party at the Biltmore recently where we were given some more evidence of the innate organizational genius of the distaff side. This, we believe, was just their second cocktail party and they put it on like a group of veterans—better, indeed, than do most of the oilmen's groups that have been practising for the last 25 years. Largely, we understand, this success was due to the excellent work of Alba Gleason who was in charge of arrangements. Alba is the very pleasant gal who officiates as secretary for Ed Millett, Jr., up in the CNGA headquarters and we have exchanged interesting chatter with her on many an occasion during the past ten years or so.

But enough of this humiliating debate—as for the party itself, there we met more lovelies and more high brass than you would find at a reception for Princess Elizabeth. Among those we can remember by name were Bea Landry, the fortunate young lady who caters to the stenographic needs of Homer Steiny; Blanche Kelly, former prexy of the local chapter, now vice president of the national organization, and secretary to Sam Grinsfelder; Florence Hopkins, the very attractive current president of the local D & D Club who functions as amanuensis to Herbert Hoover, Jr.; Elsie Edmiston, long associated with the American Petroleum Institute and undoubtedly one of the best known gals in the oil industry. Mrs. Z. "Midge" Flesher, talented and highly decorative scribe of Henry Paulsen; Evelyn Mosher, capable secretary to Howard Smith; Evelyn Schranz who handles the diverse correspondence that passes over Clarence Beesemyer's desk; Lorraine Rich, very personable secretary to John Peirce; Adele Brachman, the young lovely who answers the phone when you call Rollin Eckis.

Then there was Esther Johnson who keeps track of Bob Lytle's appointments; Marie Brehm, a considerable member of George O'Brien's secretarial staff; Bessie Glen who takes down what Ed McDowd has to say; Katherine Varnes, the young lady whose office adjoins that of Fritz Taves; Jean Ivens, another of the 7600 and keeper of the Art Stewart archives; Irene Pillsbury, who takes dictation from Ellsworth Elliott; and so many more classy lassies with classy chassis that really we should never have mentioned any of them without mentioning all. Anyway, we can say, and would say it without equivocation if we knew what the word meant, that it was in all respects a lovely party and we unhesitatingly add our hearty congratulations to the grist that must already be showering in on the girls.

The annual Christmas Jinks of the Wildcat Committee of Western Oil & Gas Association again jammed the Biltmore Bowl to the rafters as chairman Henry Salvatori and his cohorts presented "Pass In Review," the 26th Bill Geis production and in our humble opinion definitely one of the best products of a long and productive career. There was a vaudeville show too but that was rather anticlimatic. What the 1800 people who bought tickets went to the bowl to see and hear was the Geis play which has become to all intents and purposes an industry tradition.

As usual the play consisted of a series of skits and acts in which high ranking executives of the industry were ribbed no end. It opened with Joe Jensen doing a lovely job of sweeping the floor and dusting off a row of (live) wax figures, representing prominent people in the oil business. As nearly as we could understand, these figures were the property of Bill Pemberton. In any case, Bill entered early in the proceedings and began to explain where he found them and why to his friend, Wendell Jones. As the discussion went along, the dummies were wound up, with suitable sound effects, one by one and as they came to life they soon showed that they were no dummies. They sang, orated, and went through all sorts of mental calisthenics, such as allocating pipe, casting highly colored

aspersions on the peddlers of defunct oil wells or dusty oil properties, and in general taking pot shots at the higher-ups of the petroleum industry.

The cast of characters included Bill Brooks who, as Bob Minckler, opened and closed the show with appropriate and well couched remarks; Frank Carter, alias Frank Morgan, who was the victim of some caustic comment himself, and retaliated by firing a few barbed shafts at Bob Minckler and Sam Bowlby, hypothetically, that is. Then came Ed Foss, with his deep bass voice, in the role of Ernie Pyles. With the assistance of the chorus he deprecated somewhat strenuously the practice of unloading oil-less wells on certain naive individuals and companies. Then followed Bill Eggleston, he of the quivering lip, who in the role of Torrey Webb sang the Marfac song with much feeling (mostly for the notes) and by way of an encore later batted through with an unforgettable version of the "Little Eva" story.

After Bill had the audience literally awash with tears, Ken Faulkner and Bill Geis, as Sam Bowlby and Cy Rubel, respectively, broke into another pathetic ballad to the same tune as the Foss aria already referred to and pretty much on the same subject. Mel Sheppard took the part of Dave Staples of the Pacific Western and the Oil Producers Agency, and it is rumored that after the performance, Mel decided to forego his histrionic ambitions and henceforth confine himself to that much more lucrative pursuit—dominoes. Following Mel's delivery of some pointed oratory Russ Green, the real song bird of the troupe, repeated last years big song hit, The Toolpusher song, and put it over as usual in top shape. The popularity of this piece may yet make it the sort of theme song of the industry.

Next came Mischa Tuttle, the concert violinist, in a lifelike characterization of Gene Starr and another version of the oil well ditty already introduced by Ed Foss and amplified by Ken Faulkner and Bill Geis. At the conclusion of the Tuttle offering, Bill Geis captured the microphone and recited a stirring parody on Tennyson's "Charge of the Light Brigade" in which the "noble six hundred" were replaced by the 7600 and the latter were given a particularly generous dosage of the Geisian razz. Stan Natcher in the difficult role of Bill Pemberton, whose characteristics and general behavior do not conform to any known plan, did as well as anyone could do with such a prodigious assignment. As a matter of fact, the Pemberton vagaries make any effort at duplication nothing but a crass conceit. Homer Steiny surprised nobody by singing a virulent edition of "Deep In The Heart of Texas" with all the aplomb of a vaudeville headliner. The entire cast assisted him in the chorus of this number.

Then came the young bloods of the organization, Basil Kantzer and Ed Stroud, who sang in their clear childlike trebles a lovely composi-

HIS NICKNAMES SOUND LIKE A TELEVISION SHOW

A familiar figure around the petroleum circuit is J. O. McFaddin, variously known as Mac and Ollie, which, come to think of it, sounds like a good title for a television show. Anyway, Mac, as we shall term him here, was born in the quaint village of St. Miguel, California, a stone's throw—if you throw well—from the oil fields. It is no wonder, thus, that when he was old enough to shoulder a fishtail bit, he at once allied himself with the black gold producers. His first job was with Fairbanks Oil Company up Taft way in 1908 and his boss there was the late Jack Gallman. Later Mac switched his affection to the Associated at Fellows and there was in charge of transportation during the building of the Pioneer-Midway camp. The Company later sent him up to Avon for a spell and then back into production at Santa Maria. He left TWA and went back to Bartlesville, Okla., as tool dresser and eventually superintendent for Empire Gas & Fuel Company, a subsidiary of Cities Service oil division. He returned to his native heath in 1922, flirted with several western operators, notably C.C.M.O., Marland, and Nordon, and then for 13 years was in charge of drilling and production for Amerada. In 1947 he took over the direction of Macco Corporation's oil division, subsequently called Macoil Corporation, and was still a considerable attache of that organization when it was purchased recently by G. E. Kadane & Sons. Mac derives his biggest recreational thrill from duck hunting, is a member of Cy Bell's famous club at Bakersfield, and has ended the career of many an ambitious young mallard. He is also a member of the Petroleum Club, there occasionally dallies with the domino players, and shows an amazing capacity for bringing together those members that produce five multiples.

tion, entitled the P.A.D. Song. They not only sang this opus in a straightforward manner, as ordered by Bill Geis but repeated with a blue rendition of the thing that was nothing short of terrific or something. In any case the whole performance was mighty high class and we defy anyone to prove it. Behind the scenes were assistant director, Howard Pyle, and property man, Dick Clark, both of whom functioned most effectively to make the affair a success. The play itself was distinctly what the show folk call a hit, and to Henry Salvatori, Bill Geis, all the cast, and the stage hands, must go a big armful of orchids for producing what might easily turn out to be another South Pacific.

Incidentally, at a luncheon earlier in the day the long and productive playwriting career of Bill Geis was recognized by the presentation of a fine set of luggage. Henry Salvatori made the presentation in behalf of the Wildcats and surprised Bill completely. The minute he was called to the rostrum he suspected that he was about to become the victim of some obscure but noisy form of skullduggery. When it turned out to be a genuine tribute to his long and faithful contribution to the betterment of petroleum histrionics, Bill for once had considerable difficulty finding words to express his badly scrambled emotions.

A very distinguished gentleman from the Po Valley in Italy, namely, Signor Mario Massarenti, manager of the Massarenti Manufacturing Works in Piacenza, has been visiting in the United States for some time and apparently thoroughly enjoying the experience. The first part of his trip to this country was organized by the E.C.A. and projected a tour of Pittsburgh, Houston, Dallas, and other eastern and Mid-Continent cities, for the purpose of looking over equipment manufacturing plants, steel mills, and oil fields. He was commandeered by the Government for a short time to do a broadcast to the Italian people over the Voice of America, and by all accounts he did a noble job of apprising the folk back home about the oil industry and our particular way of life.

During his tour of California, he has been largely under the expert guidance of Doug Graham who knows the incidentals as well as he knows the industry and should hence make an interesting and entertaining pilot. Dunlap & Graham of which Doug is president is doing a contract job in Italy, and he tells us that there are now 20 rigs working in the Po Valley of which five belong to American operators. There has been no oil discovery yet but several gas wells have been completed and there seems to be a pretty good chance of an ultimate oil find.

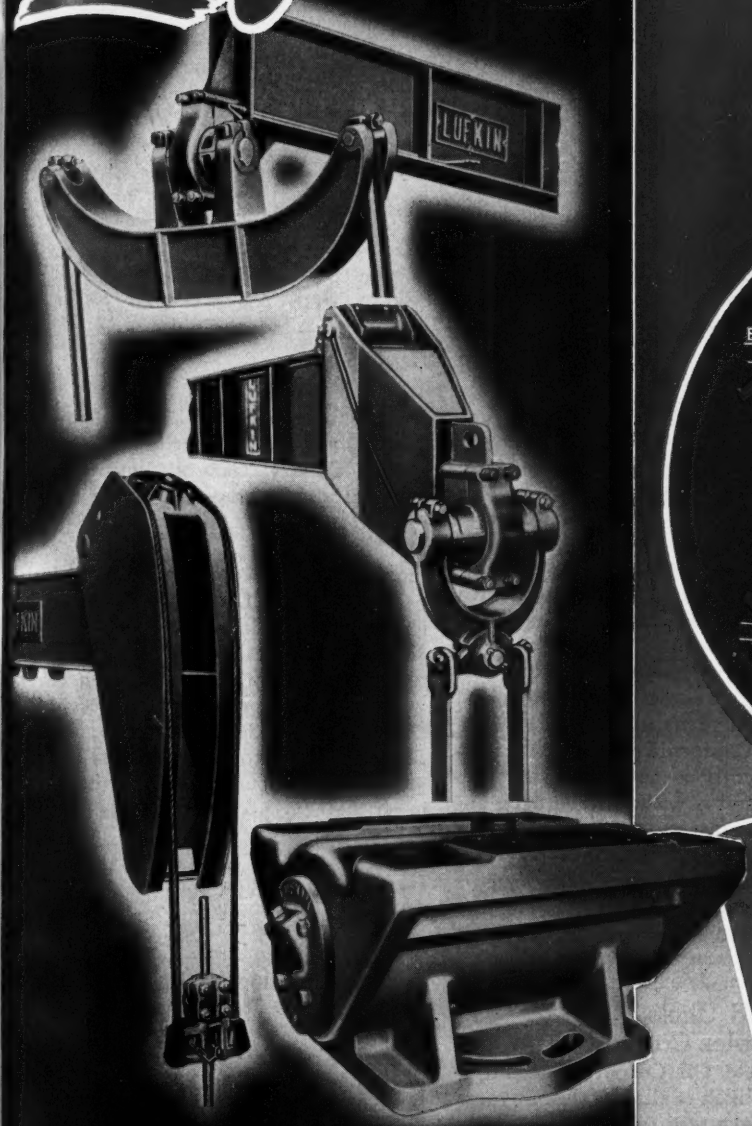
The Massarenti firm is a thoroughly modern institution that manufactures rotary rigs capable of drilling to 15,000 feet and complete from the cellar to the crown block, including pumps, hoisting machinery, and all the other essentials. Although Signor Mario's address to the Italian people was in his native tongue, he speaks English flawlessly. He is a graduate of the University of Milan in engineering with also some specialization in the arts at Cambridge. He, like most Europeans, has had an exciting experience during the past few decades and that together with the gift of colorful description makes him an exceedingly interesting companion. Indeed, he is making many friends for himself and his country out here in the golden west and is making a decidedly favorable impression wherever he goes.

We are informed by our world travel operative that Archie MacDonald, the well known Nineteener, yachtsman, fisherman, and golfer, will presently leave these comforting shores on the S.S. Coronia and sail out on a four-months' cruise that will take him almost everyplace. During the course of the voyage he will touch at Barbados, Trinidad, Bahia, Rio de Janeiro, St. Helena, Capetown, Port Elizabeth, Diego Suarez, Mombassa, Zanzibar, Colombo, Bombay, Aden, Naples, Villefranche, Gibraltar, Haifa, Alexandria, Athens, Lisbon, Cherbourg, Southampton, and thence back to the Wilshire Country Club. There, over an occasional joust of gin rummy, Archie will no doubt regale the players with deathless diatribes on the platter-lipped lassies from Ubangi; the Grecian archipelago, the hartebeeste, stud poker, and other abstruse matters, known only to world travelers.

The "Mr. and Mrs. Club," mixed group of oil men and suppliers, held their Christmas party Saturday December eighth, at The Carolina Pines. Thirty five couples were present including fourteen guests, shown above. Favors, music, songs and the genial humor of Al Jensen, President, were features of the evening.

Pictured above are: Messrs. and Mesdames M. E. Gray, W. C. Brooks, L. P. Sacre, C. H. Tuttle, R. J. Glascock, P. P. Schubert.

Lufkin



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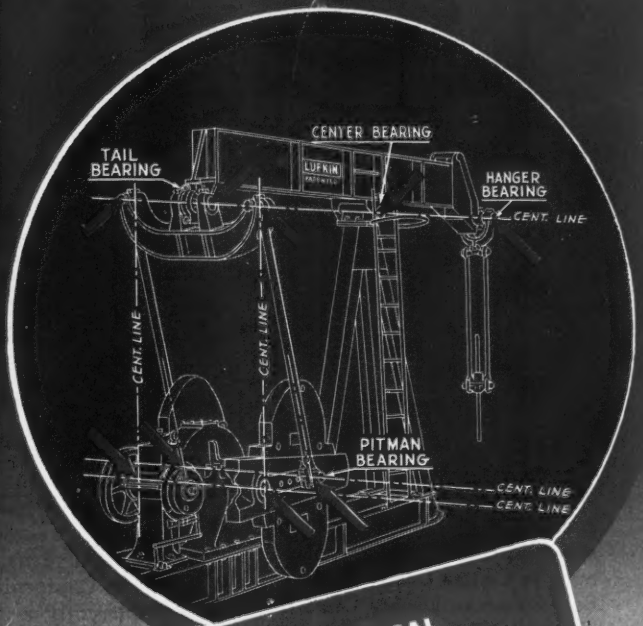

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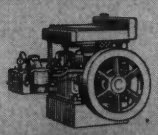

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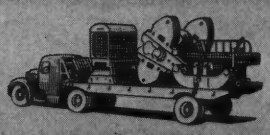
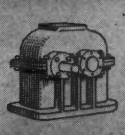


LUFKIN OIL FIELD AND INDUSTRIAL TRUCK TRAILERS



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Field Development

Elk Hills Job Hits Large Sand

Believe it or not, reports from the Elk Hills field credited Standard of California's No. 336-26B on Sec. 26-30s-23e with taking in some 1360 ft. of oil sand in going to a total depth of 7533 ft. Top of the zone evidently was 20 or 30 feet above the 5900-ft. level, with but thin streaks of shale at intervals to mar solidity of the measure. North of the closest production at Elk Hills, Humble Oil & Refining Company has assembled acreage for an interesting play, which among other properties embraces more than 2000 acres of the Palm Farms Inc. land.

Contra Costa Wildcat Staked

Under the banner of John Baldwin, Operator, a new well tagged Baldwin Soite No. 1 is preparing to start on Sec. 17-2s-1w near Pittsburg in Contra Costa County. In the Sargent area of Santa Clara County, Molino Oil Company has acquired the old Fred W. Shire and Dan Fisher well on Sec. 36-11s-3e. The new operator is drilling on down at 920 ft.

Alameda County Test Scheduled

Alameda County has come into prominence with the staking of The Texas Company's Hancock NCT-One Wenty No. 1 wildcat, 330 ft. north and 990 ft. east from the west quarter corner of Sec. 27-3s-2e. Drill site is in the Hospital Nose area and nearly a mile south and east from Hancock-Signal's R. A. Hansen No. 1-21, which was undertaken by Hancock Oil Company and carried to a depth of 7326 ft. before abandonment in December, 1950. Two trials evoked but a little gas.

Amerada Petroleum Corporation has got around to giving out detailed information on its I. and L. Wiseman No. 2 gas test on Sec. 27-6n-2e in the Maine Prairie area of Solano County. Spudded last October 9, the project drilled to 6349 ft. The Midland sand zone was reached at 4754 ft. Intervals perforated in this zone were 4754-4766 and 4772-4790 ft. At its best the well evidently showed a flow of gas at the rate of 5,390,000 cubic ft. daily.

Coast Leasing Reported Growing

Up the north coast from Los Angeles, leasing seems to have the attention of several operators. Although, nothing in this direction has been officially released, center of the leasing appears at Topango Canyon, Malibu, Point Dume and Castro Peak. The area has already felt the wildcatter's drill. These earlier efforts, however, failed to come up with anything resembling commercial production. It is interesting to note that the California production industry currently is not by-passing any oil bets and is willing to embark upon the rankest type of wildcatting in order to boost the state's reserves. The attitude of the oil prospector amply reflects the necessity and the equity of the income tax depletion allowance.

Richfield Clicks At Morales Canyon

Richfield Oil Corporation continues to finish wells in the Cuyama Valley area with clock-like regularity. The company's latest sucess is Ritter C No. 23-11 on Sec. 11-11n-28w in the Morales Canyon section, which started off from 5801 ft. flowing 400 barrels of 38.5 gravity oil a day through a 48/64-in. choke. Location is a short distance north of production. Between Morales Canyon and the Russell Ranch field, Richfield is commencing an interesting test well on Sec. 14-11n-23w, known as Joice B No. 41-14, about a mile southeast of the closest wells producing. Early this year R. B. Watkins wildcatted in the area with his Luce No. 1. Oil showed but not in commercial quantities and the project went into oblivion. J. F. Kosanke has suspended operations at 4310 ft. with his Kosanke No. 9 test on Sec. 23A-11n-28w.

Hollister Test Starts

Attracted by the production possibilities of the Hollister area of San Benito County, General Petroleum Corporation is grading ground for its O'Connell No. 1 wildcat on Sec. 11-12s-4e. This is north of Texaco's recently completed O'Connell No. 1 gas producer on Sec. 14. At Lonoak in the county, Standard Oil's Eade No. 53-26 wildcat is making hole below 3750 ft., without intimation of what may look promising to present depth. On the Ciervo Anticline, McDonald & Brenton's No. 1 prospect job is idle temporarily at 114 ft. It is on Sec. 19-16s-11e.

Kern River Well Drills

In the old Kern River field, Palomar Oil & Refining Company is cable-tool drilling its Brown No. 1 on Sec. 27-28s-28e in the shallower formations. On Sec. 19, Kern Oil Company, Ltd., has completed its No. 10-64 on Sec. 19-28s-28e at 1120 ft. for 25 barrels a day.

Antelope Hills Well Producing

Continuing its development work in the North Antelope area of Kern County, Tide Water Associated Oil Company has staked well No. 24 on Sec. 14-27s-19e. The No. 25 on the section came in from 2440 ft. for 135 barrels of 16.3 gravity oil a day. Interval producing is 2339-2395 ft.

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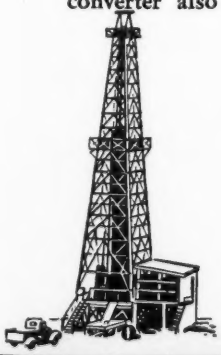

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Los Angeles Basin

Tunnel Test Drills Ahead

In the Tunnel area of Los Angeles County, Union Oil's Needham No. 2 wildcat on Sec. 12-3n-16w at last reports was making hole ahead below 1000 ft. Needham No. 1 on the section was an abandonment at 4008 ft. Bailing to 1580 ft. evoked no rise. In the Newhall-Potrero area, Union's No. 1 on the Ferguson lease in Sec. 31-4n-16w is digging at 5275 ft.

Orchardale Try Deeper

At Orchardale in Los Angeles County, Western Gulf's Unit A No. 1 exploratory hole on Sec. 10-3s-11w is digging deeper at 5865 ft. Vincent J. Puccio and Carl Doshay have reached 1000 ft. with Puccio-Doshay No. 1 test on Sec. 3-3n-15e at Placerita.

Corona Try Cores

Max N. Hammerling's M. N. H. No. 1 wildcat on Sec. 21-4s-6w near Corona in Riverside County is coring at 840 ft. Ciroco's Ciroco-Wright No. 1 on Sec. 33-3s-7w has been given up at 1516 ft.

Chino Hills Well Coring

Coring at 1850 ft. was the latest information at this writing on L. H. Cameron's No. M-8 wildcat on Sec. 32-2s-8w in Chino Hills, San Bernardino County. In the Colton area, John W. Brashears is digging at 2560 ft. with Dana No. 1 on Sec. 26-1s-5w.

Whitney Canyon Well Tests Uphole

Drilled to a total depth of 8253 ft. and plugged at 7328 ft.. Continental Oil's wildcat, Phillips No. 1 on Sec. 6-3n-15w at Whitney Canyon, is being tested uphole by stages. The company's Elbe-USL No. 1 test on Sec. 20-7n-17e at Ridge Basin is down 5188 ft. In the Seal Beach area, CONOCO's Bixby No. 62 extension try on Sec. 2-5s-12w is making hole at 11,700 ft. Alexander No. 1, a wildcat on Sec. 23-5n-17w at Castaic, is an abandonment at 4851 ft. Continental is nearing the spudding stage with its Braille No. 3 on Sec. 1-3n-16w in the Newhall townsite area. The project will seek to widen the Braille Pliocene pool in a northerly direction from Talisman Oil Company's Braille No. 1, which was completed last March as a new discovery at 3196 ft.

Continental Oil Company's Phillips No. 1 in the Whitney Canyon area near Newhall, Calif. Dunlap and Graham, drilling contractor. Left to right: W. O. Heinze, derrick; Gilbert Hines, racker; T. K. Knox, driller (kneeling) K. L. Leatherman, lead tong; C. E. Thompson, cathead.

Paradise Ranch Wildcat Working

Daum Drilling Company, the new operator of Mary Austin No. 1, on Sec. 28-6n-17w on the Paradise Ranch near Castaic, is working the well over. The project is at a depth of 3646 ft. and the new operator is sidewall sampling at this writing. Until the present activity the well had been quiescent since last August.

Gardena Try Digs

Gardena Royalties Company's Comm. No. 4-1 wildcat on Sec. 24-3s-14w at Gardena is prospecting ahead below 8700 ft. At Pico Canyon, Los Nietos Company's Odeen No. 1 wildcat on Sec. 12-3n-17w continues to punch down at 4970 ft. In the vicinity of the San Fernando Reservoir, the company's Hartman No. 1 try on Sec. 1-2n-16w was last reported coring at 8240 ft., after recovering fish.

Castaic Hills Well Planned

Douglas Oil Company of California has plans drawn for a well on its lease on Sec. 35-5n-17w in the Castaic Hills area. Actual work is not expected to begin until any one of a number of wells drilling on adjacent ground comes on production. Continental Oil Company opened up the area with a discovery well completed the middle of last September for a substantial flow of 32 gravity oil. The oil finder is only about 3000 ft. from the Douglas lease. Ted Sterling and Paul Trousdale hold interest in the play along with Conti-

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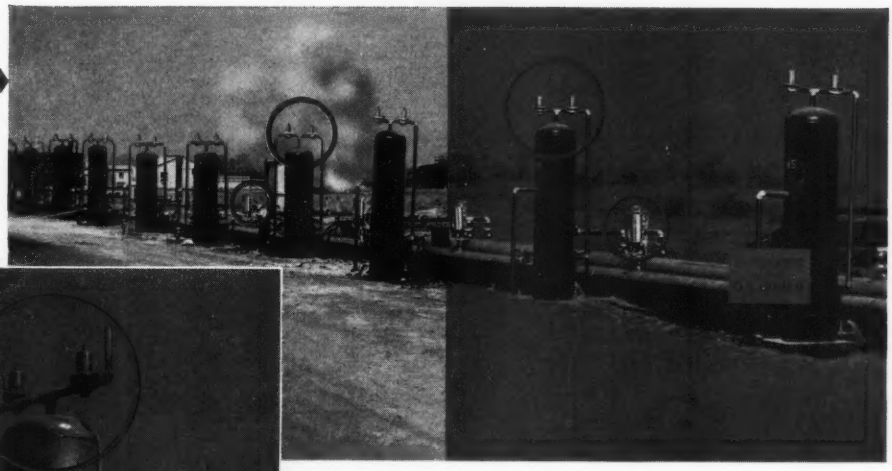

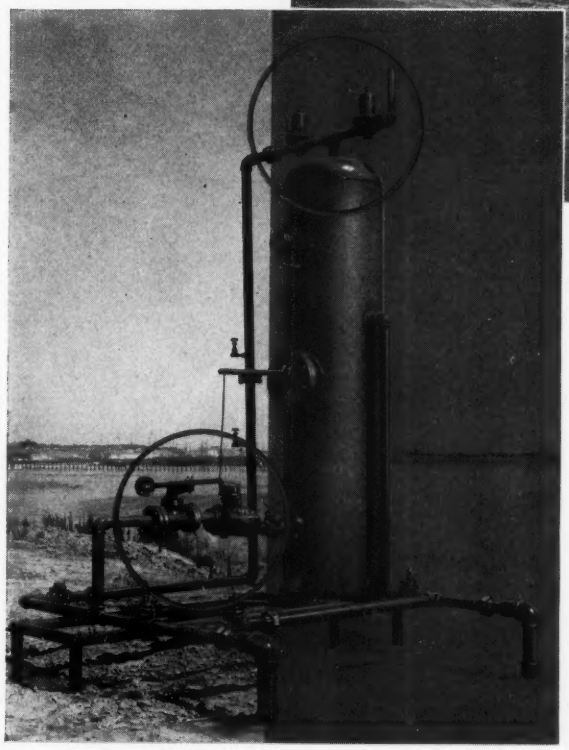

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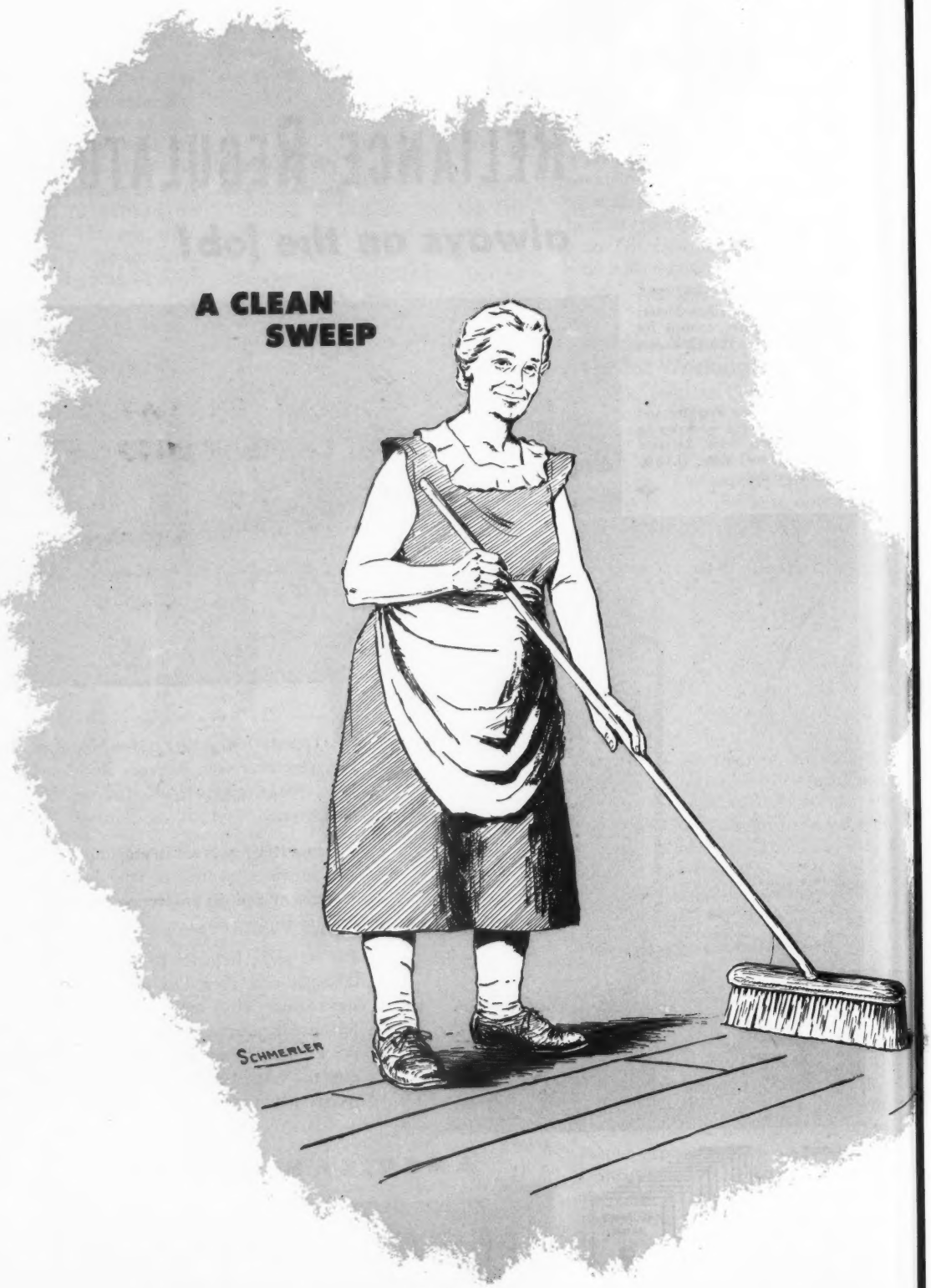
A CLEAN
SWEEP
SCHMERLER

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nental. CONOCO at last reports was drilling below 6400 ft. with Rynne-Fisher No. 2 on the section. A short distance northeast of the Douglas property, George Terry's Eskridge No. 1 on Sec. 36-5n-17w is drilling at 3000 ft. Richfield's Golden No. 83-35 on Sec. 35 is digging at 4730 ft.

Lancaster Wildcat Digs

Twelve miles west of Lancaster on the Mojave desert, H. W. Shaffer's Muntz No. 1 exploratory venture on Sec. 9-7n-14w is making hole ahead at 3300 ft. Shaffer is a prominent rancher and businessman of Palmdale.

Imperial County Wildcat Staked

Texas Company is making ready to drill with its Pure NCT-One No. 1 on Sec. 31-11s-10e in the San Felipe Hills area of Imperial County. A series of mechanical troubles have delayed normal drilling operations in the company's Jacobs NCT-One No. 1 on Sec. 18-17s-14e near Calexico. The well was plugged back from 6734 ft. to 6144 ft. to sidetrack fish.

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Del Valle Wells Try

Southern California Petroleum Corporation's N.L. & F No. 2, a test on Sec. 2-4n-17w in the Del Valle area, is digging at 7924 ft. On Sec. 15-4n-17w, California Standard's Blair No. 7 is digging at 3980 ft.

McNally Ranch Wildcat Drills

Southeast of Los Angeles on the McNally Ranch, Texaco's No. 1 wildcat is still digging deeper for an elusive pool surmised on Sec. 23-3s-11w. Drill pipe stuck around 8330 ft. was recovered speedily. At Castaic Fork, the company's Honor Rancho Two No. 1 is drilling at 5340 ft. on Sec. 36-5n-17w in an effort to spoon up some commercial oil. Stanley No. 1, another Texas Company enterprise on Sec. 34-5n-17w at Castaic, is grinding at 5182 ft.

Northridge Test Ready

Ready to set the rotary whirling is Richfield Oil with its Mulholland No. 1 wildcat on Sec. 28-2n-16w near the town of Northridge in San Fernando Valley. Redrilling has reached 2358 ft. in the company's Hurley No. A-1 on Sec. 9-2s-10w in the Puente area. The project first poked to 4797 ft.

Chatsworth Wildcat Rigs

Spudding is the next move with Sunray Oil's Porter Estate No. 81-16 on Sec. 16-2n-16w in the Chatsworth area, Los Angeles County.

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It's like adding extra hours to your working day—the way Armco Welded Steel Pipe speeds jobs.

Long, 40-foot lengths mean there are fewer sections to haul and handle—fewer joints to assemble. Even these go together quickly to speed work and keep costs down.

Chances are you'll also save on metal with Armco Pipe. A wide range of diameters (4 to 24 inches) with wall thicknesses from .074 to .239-inch enables you to match exact job requirements. No paying for excess weight and material. Write for complete information.

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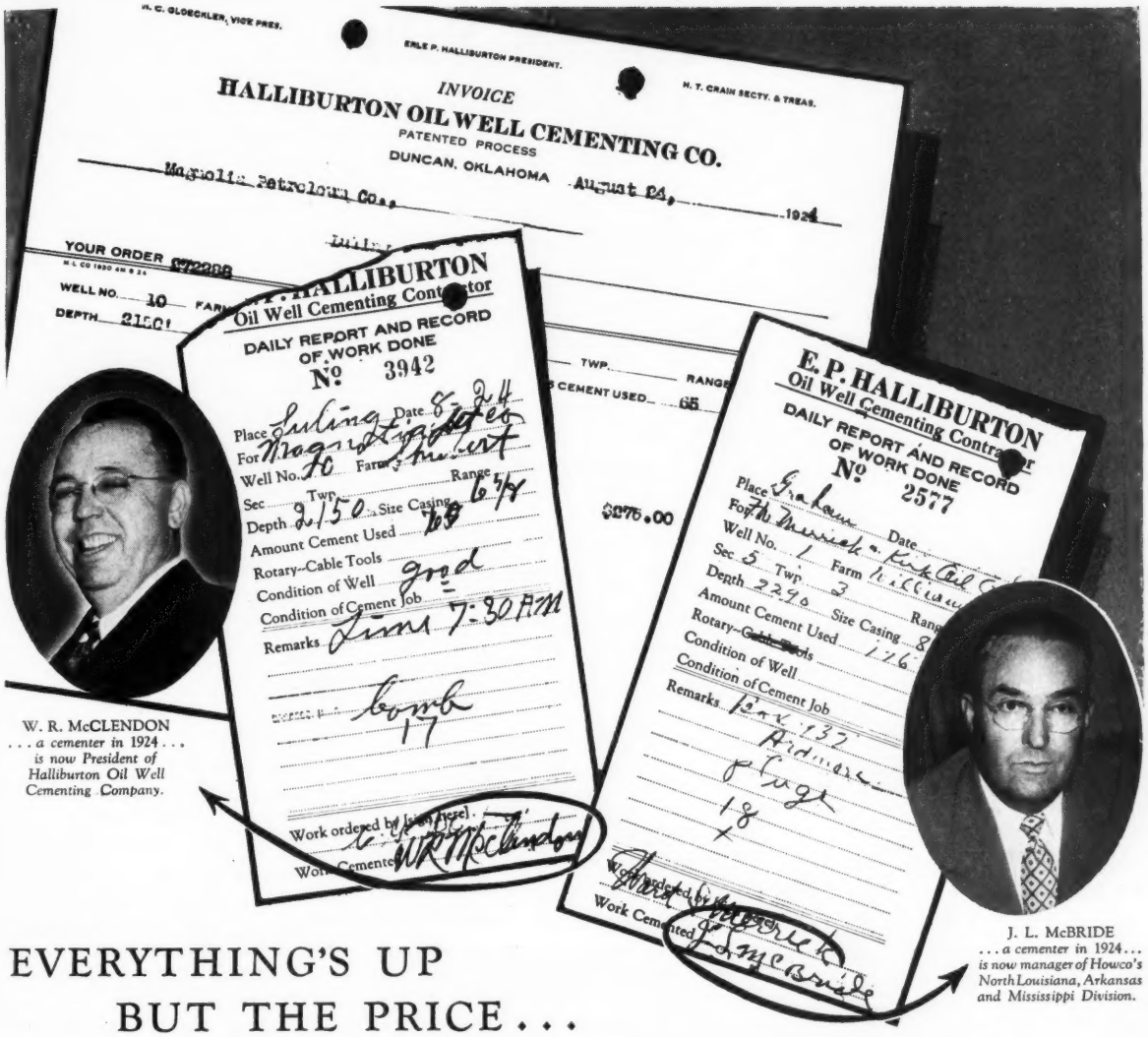


W. R. McCLENDON
. . . a cementer in 1924 . . . is now President of Halliburton Oil Well Cementing Company.

J. L. McBRIDE
. . . a cementer in 1924 . . . is now manager of Howco's North Louisiana, Arkansas and Mississippi Division.

EVERYTHING'S UP BUT THE PRICE . . .

The men have gone up. W. R. McClendon, a cementer in 1924, is now President of the Halliburton Company. J. L. McBride, also a cementer in 1924, is now manager of Howco's North Louisiana, Arkansas, and Mississippi Division.

The cost of cementing trucks has gone up—from $6,000 in 1924 to more than $50,000 today.

Cementers' wages have gone up by more than 70%.

Only one element of a cementing job has gone down. The price of the average job today is less than it was in 1924!

Erle P. Halliburton

Chairman of the Company

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

San Joaquin Valley

McKittrick Try Going On Pump

Pump is being rigged to the Bender-Stansbury-Webb combination's Anderson No. 1 test on Sec. 15-30s-21e on ground west of the McKittrick field. Carried to a total bottom of 5011 ft., the well was plugged back to 4638 ft. for the final touch, but it showed little disposition to flow naturally with the result pump was called for. The company's first well in the area, the pool finder, came in a couple of months ago for 250 barrels of 33.1 gravity oil a day through a 12/64-in. bean.

Midway-Sunset Well Completed

General Petroleum Corporation's Midnorth No. 22 well on Sec. 32-12n-23w in the Midway-Sunset field is a completion at 2460 ft. Production last reported was 4 barrels of 26.8 gravity oil a day, cutting 25 per cent. Sunray Oil's Maxwell No. 14 on Sec. 27-31s-22e is poking ahead below 1200 ft.

Devils Den Test Inactive

On test of the intervals of 1222-1379 ft., Gilliland Oil Company and C. O. Davis' Strode No. 3 on Sec. 15-25s-18e in the Devils Den area reacted with a 345-ft. rise of gas-cut drilling fluid specked with oil. The well has been suspended temporarily. Total bottom is 3355 ft., with plug at 1380 ft. Fife, Cramer & Owen has started preliminary work on No. 1 wildcat on Sec. 35-25s-18e.

Elk Hills Acres Taken

On an assignment from George L. Bradford of Bakersfield, Humble Oil & Refining Company is understood to have secured approximately 3300 acres in the North Elk Hills area. The land is described as in Secs. 3, 4, 9, 10, 14, 15, and 16-30s-24e along the north hem of the Naval Petroleum Reserve and northwest of the Tupman community. At Elk Hills proper, Standard Oil's No. X-55 on Sec. 30-30s-23e is testing uphole by stages. Total depth is 12,856 ft.

Reef Ridge Wildcat Dry

Drilling stopped at a depth of 425 ft. in gray sand in O. M. Slosson's Reserve No. 2 wildcat on Sec. 35-23s-17e at Reef Ridge, Kings County. In the Corcoran area, General Petroleum's Richardson No. 36-4 explorer on Sec. 4-21s-21e has reached 11,485 ft.

Arvin Test Coring Ahead

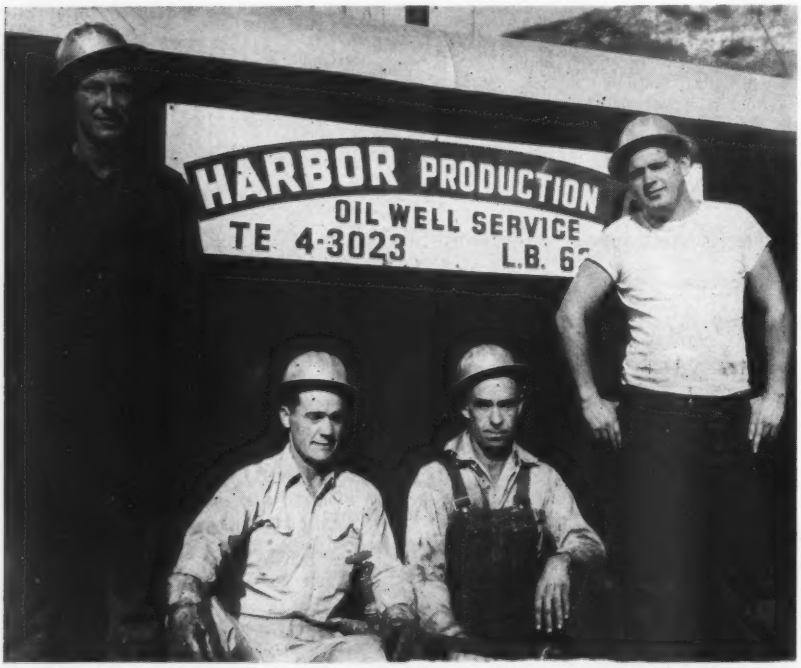
On formation test of the interval of 6570-6640 ft., Havenstrite Oil Company's extension test in the Arvin area of Kern County showed some clean oil and probable ultimate success of the project. Known as Richards No. 1, the well is on Sec. 22-31s-29e, about one-half mile west of Texaco's George No. 1 discovery. In the nearby Edison area, Ring Oil Company is preparing to spud its Edison-Stockton No. 3 on Sec. 33-30s-29e.

San Emidio Wildcat Quits

Western Gulf has abandoned its KCL-Rock Pit No. 83-12 wildcat venture on Sec. 12-11n-21w in the San Emidio Rancho area of Kern County. It went to 12,172 ft. Commercial oil also eluded the company's McAlpine Comm. No. 57-17 on Sec. 17-29s-25e in the Goose Slough area. Drilling was carried to 10,595 ft. Many persons owned small parcels in the McAlpine community tract. The Texas Company, meantime, is digging at 9850 ft. with its KCL-Goosloo No. 1 on Sec. 2-29s-25e, following electric log run to 9810 ft.

Cuyama Valley Wildcat Rigged

Richfield Oil is ready to drill its Joice B No. 41-14 on Sec. 14-11n-28w in the North Cuyama Valley area, San Luis Obispo County. The derrick stands about three-quarters of a mile southeast of production in the Morales Canyon field. In the South Cuyama area, Richfield's Cox No. 13-5 on Sec. 5-9n-26w is redrilling at 4304 ft., after going originally to 5232 ft. Perkins No. 18-31 on Sec. 31-10n-28w is down 4484 ft. and preparing to plug off lower perforations.



Shell Oil Company's Taylor No. 89 in the Ventura Avenue field. Harbor Production Company's crew on the job. Left to right: K. A. Bell, derrick; Robert Greer, floorman; C. W. Breedlove, head well puller; M. G. Hoppe, floorman.

Hollister Test Works

Test are continuing with Texas Company's O'Connell No. 1 wildcat on Sec. 14-12s-4e, San Benito County. Drill site is six miles northwest of Hollister and midway between that town and the old Sargent field. On the last reported trial the well showed periodic gas blows estimated at around 500,000 cubic ft. a day. Drilled to a total depth of 7418 ft., the project is plugged back to 5550 ft. About two and one-half miles in a northwesterly direction lies the Lomerias field.

Madera Wildcat Stakes Location

Leingang Oil Exploration Company is engaged in work preliminary to starting the drill in its Smith No. 2 wildcat well on Sec. 22-11s-19e, 10 miles east of Madera in Madera County. Approximately one mile northwest of the wildcat, Union Oil Company drilled its C. H. Smith No. 1 test to a total bottom of 1196 ft. before giving up the project in June, 1944.

Rosedale Try Staked

In the Rosedale area of Kern County, Humble Oil & Refining Company has staked location for its Rosedale-Stevens Community No. 2 on Sec. 15-29s-26e. This is three locations north of the company's August Prunotto No. 1, which was completed some weeks ago at 7500 ft. for an initial yield of 465 barrels of 33.1 gravity oil daily.

Coffee Canyon Well Programmed

Another drilling job is beginning under the banner of Golden Bear Oil Company in the Coffee Canyon area near Round Mountain. Coffee No. 8 will grind on Sec. 6-28s-29e. The company at this writing is in the completion stage with its Lindsay No. 8 on the section. The well was drilled to a bottom of 1726 ft. and is set with 7-in. pipe to 1700 ft. Vedder oil sand was topped at 1700 ft.

Raisin City Well Drilling

In Fresno County's Raisin City field Sunset Oil Company is drilling through the relatively shallower formations with its Renee Morris No. 1 well in Sec. 13-15s-17e on proved ground. Target of the well is the 4700-ft. sand. Location is on fee property owned by Mark Morris and Mrs. Morris. Near Clovis, Long & Hedges is about to spud No. 1-7 wildcat on Sec. 7-12s-21e. A scheduled 4500-ft. test, the well is about 12 miles north of the city of Fresno. At East Coalinga, Shell Oil's No. 136 on Sec. 34-19s-15e is digging deeper at 3375 ft. At Riverdale, Valley Oil Company's Levee No. A-1 is drilling at 5340 ft. Location is on Sec. 10-17s-19e.

Introducing

C. E. Van Loozen, L.F.O.

That L.F.O. means "Looking For Orders" and Eddie is always looking—high and low—day and night. ★ He finds 'em too ★ Just ask him who the "top man on the totem pole" was last month. ★ Of course Web Wilson Tongs, Elevators, Links, Connector Hooks, and especially Tiger Tooth Tong Dies, are not too hard to sell when Eddie can get a man to listen while he points out how fast and safe they are—and how economical in service. ★ Maybe you should phone him at Menlo 4-6621 and talk things over.

Gas-Turbine Ship Tests Successfully

Shell Oil Company announces the world's first gas-turbine powered merchant ship, the 12,000-ton tanker Auris, has been placed in regular service. The Auris recently finished successful sea trials on a voyage to the Caribbean. Regarded as one of the most important recent developments in the shipping field, the tanker's new type engine offers a number of specific advantages. For example, the gas-turbine has only two moving parts, instead of the dozens in conventional engines. Many tons lighter, it requires much less space than ordinary engines of the same power. With the new type engine, risk of failure and the cost of operation and maintenance are considerably lower. The Auris was built in England for one of the Shell group of companies. It was designed especially for testing gas-turbines, new types of cargo-handling equipment, and other improvements in marine delineation. Since launched in 1947, she has been driven by four Diesel electric units. One of these has now been removed to make way for the new gas-turbine. Shell made known that the Auris will continue in service as a regular oil carrier.

New Bulletin Issued by Black, Sivalls & Bryson

Black, Sivalls & Bryson, Inc., announces the publication of a 12 page bulletin on the New BS&B Glycol Injection System. Attractively printed in two colors, the contents are arranged for easy reading, written in non-technical language and fully illustrated with diagrammatic drawing and charts.

The BS&B Glycol Injection System is a low temperature separation process with an inhibitor added to prevent hydrate formation. The system allows full use of refrigeration by expansion to produce lower separator temperatures and lower dewpoints of the gas stream than conventional low temperature separation units. This results in higher recovery, longer effective life, greater salvage. BS&B low temperature systems can easily be converted to glycol injection. The operation is simple and inexpensive. Favorable payout can be proved on most installations.

This free bulletin will be furnished upon request. Address your letters to Black, Sivalls & Bryson, Inc., Advertising and Sales Promotion Department, 7500 East 12th Street, Kansas City 3, Missouri.

The Treasury announced that Finland has made a $254,052.13 payment on its World War debt two days ahead of schedule.

Coastal and Northern District

Goleta Try Digs

North of Goleta, Rothschild Oil Company's Bishop No. 1 wildcat located 5935 ft. south and 200 ft. east from the southwest corner of Sec. 7-4n-28w is grinding deeper at 2280 ft. Surface pipe was set at 200 ft. Not far from spudding is Union Oil's Harris No. A-2 wildcat which will seek A-1 production on Sec. 12-8n-34w in the Harris area.

Simi Test Written Off

Union Oil Company has relegated to history its Simi No. 16 on Sec. 11-3n-18w in the Simi area, Ventura County. Drilled to 1500 ft., the well on bailing test showed a little rise of most all fresh water. Simi No. 15 on the section at last reports was drilling and spot coring at 5860 ft. The company is in the beginning stages with two wildcats in the Wheeler Canyon area. They are Ex-Mission No. X-5 on Sec. 21-4n-22w and Ex-Mission No. X-6 on Sec. 3-4n-21w. On the Santa Ana Rancho, Superior Oil Company is looking for the address of new oil supplies on Sec. 9-4n-24w. The search for oil is being conducted by Chismahoo No. 1, which is moving ever deeper at 1608 ft.

Camulos Try Works

Coring at 8875 ft. is the present status of General Petroleum's Camulos Rancho No. 1 wildcatting on Sec. 21-4n-18w on the Camulos Rancho, Ventura County. At Santa Paula Creek, Kemper Oil & Associates has reached 750 ft. with No. 1 test on Sec. 27-4n-21w.

Oxnard Test Pumping Well

Jack Herley, veteran oil producer and oil field supplyman, has finaled on the pump his J. H. No. 1 wildcat well on Sec. 6-1n-21w near Oxnard. Accurate gauge on the well's power to produce was not available at this writing. In the Sespe area, Newell Oil Company's Dixie No. 4 test on Sec. 5-4n-19w is idle at present at 1360 ft.

Ojai Wildcats Making Progress

Drilling has gone beyond the 7500-foot level with Bankline Oil Company's B. & L. Noo. D-1 on Sec. 12-4n-22w in the Ojai area. Richfield's Hillside No. 1 try on Sec. 8-4n-21w at Upper Ojai is digging at 980 ft. On wildcat ground at South Mountain, Ohio Oil Company's Norman Richardson No. 1 on Sec. 24-3n-21w continues to poke ahead at 1125 ft.

Red Mountain Tester Drills

Having recovered fish successfully, Amerada Petroleum's H. & S. explorer on Sec. 9-3n-24w in the Red Mountain region of Ventura County is doing its stuff with the drill at 2925 ft. In the Ojai area, E. H. A. Andrews' Carty No. 1 on Sec. 11-4n-23w is inactive at 3438 ft. from a drilling standpoint during equipment repairing. Lloyd Corporation has staked W. S. No. 2 on Sec. 20-3n-22w in the Ventura Avenue area. No. S-3 on the section recently came in from 12,293 ft. for a present flow of 370 barrels of 33.2 gravity oil daily.

Reyes Peak Test Drills

Atop rugged Reyes Peak in Ventura County, where wintry winds blow, Standard Oil of California continues to drill ahead with its Hattie Russell No. 1 on Sec. 11-6n-23w at 8320 ft. The company's Pidduck No. 1 on Sec. 20-2n-22w in wildcat territory at Montalvo is drilling at 7270 ft. McGrath No. 31-14 on Sec. 25-2n-23w in the field is being completed at 9800 ft.

Moody Gulch Wildcat Digs

In the old Moody Gulch area of Santa Clara County, Los Nietos Company's Holy City No. 1 on Sec. 9-9s-1w is redrilling at 3240 ft. The project first travelled to a total depth of 4659 ft. In the Santa Cruz area, Union Oil's Teresa Hihn No. 2 test on Sec. 34-10s-1e is about to spud. Location is near Bean Hill, made famous years ago by the great crops of beans grown by expert Chinese farmers.

Tepusquet Area Wildcat Drills

Drilling is moving ahead at 3600 ft. with British American Oil Pro-

Texas Company's Kern No. 13 in San Martinez Canyon. California Production Service's crew on the job. Left to right: C. B. Merserveau, helper; S. E. Hawkins, helper; W. E. Collom, head well puller and R. B. Osendore, derrick.

ducing Company's Rancho Suey No. B-1 on Sec. 5-10n-34w in the Tepusquet area, Santa Barbara County. A fishing job somewhat higher in the hole was successfully completed. In the Santa Ynez area, the company's Santa Ynez Unit No. 3 on Sec. 6-5n-29w is an abandonment at 4002 ft. At Cat Canyon, Geepee's Houk No. 43-9, a wild kitty on Sec. 9-9n-33w, is making hole at 4780 ft.

Tracy Test Drills Ahead

Drilling is at an inconclusive depth at this writing in Seaboard Oil Company's Simos No. 1 test northwest of the Tracy gas field on Sec. 8-2s-5e, San Joaquin County. Location is three-quarters of a mile southeast of the company's Hall No. 1, which was abandoned early in December at 5865 ft. in the Cretaceous.

Maine Prairie Test Staked

Amerada Petroleum is preparing to drill its third test on land south of Maine Prairie in Solano County. The company's Peters No. 1 will drill on Sec. 10-3n-2e.

Vaca Mountain Wildcat Drills

Western Gulf Oil's J. N. Knowles No. 1 wildcat on Sec. 28-9n-3w in the Vaca Mountain area of Napa County continues to prospect ahead below 9200 ft. North of Kirby Hills proper in Solano County, Shell Oil's Trico Unit No. 1 test is testing plug at 7486 ft. Total bottom is 7828 ft.

Guadalupe Try Dusty

The Stansbury - Webb interests have abandoned Reese No. 1, a wildcat venture on Sec. 18-11n-34w at Guadalupe, San Luis Obispo County. Los Nietos Company's Le-Roy No. A-3 on Sec. 22-10n-36w is drilling and coring at 5500 ft.

San Ardo Wells Give

The Texas Company has added two new producers in the San Ardo field in Monterey County. Roseberg No. 45 and No. 46 are putting out a combined daily production of 200 barrels from respective depths of 1927 and 1959 ft. In the Cat Canyon field of Santa Barbara County, Union Oil Company has swollen yield there with a new well. It is Bell No. 131 on Sec. 26-9n-33w, which is producing at the rate of 75 barrels a day. A heavy cut was reported cleaning up.

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San Miguelito Well Flowing

Present production of Continental Oil Company's Grubb No. 320 well on Sec. 23-3n-24w in the San Miguelito field, Ventura County, is 98 barrels of 26.8 gravity oil and 75,000 cubic ft. of gas daily from a plugged depth of 9540 ft. A one-inch bean is in use. In the South Mountain field, Shell Oil Company's No. 17 on Sec. 19-3n-20w is in on the pump for 275 barrels a day from 5500 ft.

Tapo Canyon Job Drilling

Fullerton Oil Company's development job in the Tapo Canyon area of Ventura County is making progress with the drill at 1650 ft. The well is named N.L. & F. No. 0-4 and is on Sec. 36-4n-18w.

Tejon Ranch Zone Opened

Reserve Oil and Gas Company of San Francisco has clicked with a new zone discovery in the middle portion of the Tejon Ranch in Kern County. The well, No. 58-33 on Sec. 33-11n-19w, came in for an estimated 3,000,000 cubic ft. of gas a day from the Jasper sand, the equivalent of the Valv-Cal zone along with a spray of oil through a 16/64-in. orifice. Reserve's No. 46-A-34 is making hole ahead near 1375 ft. in Sec. 34-11n-19w. B. K. S. Oil Company's Bright No. 3 on the section at last reports was digging at 2400 ft. Reserve's share of oil produced on its properties during last October averaged 1359 barrels daily, a new high record. This is at the rate of 123,000 barrels a quarter. The previous high quarterly record was 100,600 barrels, which was established in the third quarter of the present year. In the Tejon Hills, Steele Petroleum Company's Roco No. 26 is a completion at 472 ft. for 26 barrels of 29 gravity oil daily, with initial cut somewhat high.

Personalities IN THE NEWS

Rockwell Reorganizes Sales Department

L. A. Dixon, Vice President of Rockwell Manufacturing Company, has announced plans for the countrywide reorganization of the Company's sales department. Five regional managers have been appointed to service the entire United States, effective January 1, 1952.

H. Boezinger

The Eastern Region will be under the direction of M. J. Harper with headquarters in New York City. The Central Region will be supervised by P. C. Kreuch with headquarters in Pittsburgh. The Southern Region will be headed by J. W. Northcutt with offices in Atlanta, Ga. The Mid-Western Region will be under the jurisdiction of C. K. Madison with offices in Houston, Texas. The Western Region will be managed by H. Boezinger with offices in Los Angeles, California.

Rockwell will continue to maintain district offices in the major cities of the country as they have in the past.

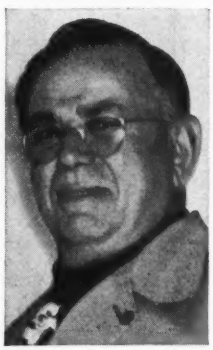
John E. Kelderhouse has been named district secretary for the newly created north-central district of the Liquefied Petroleum Gas Association, with headquarters in Chicago. The association now has six district offices. They are in San Francisco, Denver, Wichita, Atlanta and Boston. The new district will serve the states of Minnesota, Wisconsin, Illinois, Michigan and Iowa. The LPG branch of the petroleum industry is growing at a rapid rate.

George Ring, Ring Oil Company of Los Angeles, is up and around after a siege of pneumonia which laid him low for several weeks. George and his brother Frank are veteran oilmen. They were in there pitching in early days at both Signal Hill and Santa Fe Springs.

Leaving the dust of the Lone Star State for a while where he has been successfully developing oil, B. C. Morris, widely known member of the California oil fraternity is back in Los Angeles. However, he will not stay long in L. A. as operations in Texas call him back for direction and supervision.

When Charles Z. Hardwick, vice president and manager of Ohio Oil Company's marketing department, was elected national chairman of the Oil Industry Information Committee, it marked the first time a non-professional public relations man has been named to head the committee in its five years of existence. Hardwick, among many other reasons, was chosen because professional public relations men from the petroleum industry serving on the committee felt that a non-professional public relations man as chairman can enlist a wider, more thorough participation from the industry in its PR program.

Bowen Appoints "Bill" Burcham Bakersfield Store Manager



Wm. M. "Bill" Burcham, who has been with the Bowen Fishing Tool Company since 1942, was recently promoted to store manager at Bakersfield.

Burcham is well qualified for his new position and territory, since before coming to Bowen he spent 20 years with the Union Oil Company as roughneck, driller and toolpusher at Dominguez, Santa Fe Springs, and Bakersfield.

Four Los Angeles independent oilmen were honored by the Independent Petroleum Association of America for their efforts in behalf of the petroleum industry. They were L. L. Aubert, Bankline Oil; C. A. Johnson, Holly Development; W. C. Whaley, Sunray Oil; and Lawrence Vander Leck.

H. H. (Bob) Roberts, chairman of the travel and recreation committee of the State Chamber of Commerce, foresees a good season in California snow areas during the next few months for winter sports fans. Bob, as if anyone didn't know, is the popular Southern California public relations chief for Standard Oil of California.

Louis Chappuis, Los Angeles engineer and geologist, is recovering from major surgery at the Veterans' Administration Wadsworth Hospital at Sawtelle.

Ipatieff Awarded High Honor

Professor Vladimir N. Ipatieff, Director of Chemical Research for Universal Oil Products Company and Director of the Ipatieff High Pressure and Catalytic Laboratory, Department of Chemistry, Northwestern University, has been notified that he has been awarded two high honors of France in recognition of his work in aviation gasoline "which enabled production of special gasoline, so widely used to win the last war, at the time most critical for France."

Professor Ipatieff has been named a Chevalier of the Cross of Lorraine and Companion of the Resistance, the top distinction of the knighthood. He is the fortieth person and the twelfth American to receive the cross. General Eisenhower, scientist A. H. Compton, and the late President F. D. Roosevelt are among the other Americans who have been awarded this honor.

The French Association of the Knights of Cyprus and Jerusalem has also awarded Professor Ipatieff its Order, giving him the highest degree after that of the Grossmaster himself, Grand Officer.

Official presentation of the crosses of these Orders, which can be done only by a Knight of the Order, will be made some time in the near future when Professor Albert Caquot (former French minister of aviation) who is President of the Academie des Sciences des l' Institut de France arrives in this country.

L'Ordre de les Chevaliers de la Croix de Lorraine of France was established in the time of Jeanne d' Arc and was later combined with L'Ordre de la Maltic Knights. The Order was reestablished after World War II with all honors.

The Ordo Cypri Hierosolymorumque is the oldest in the world having been established in the eleventh century.

Al Heller, Los Angeles oil engineer and geologist and one of the larger individual landowners in famed Cuyama Valley, writes from La Paz, capital of Bolivia, that he is down there looking into that country's new petroleum law. He said he may bring home a llama.

Ray C. Shibe has been appointed secretary-treasurer and a member of the board of directors of Wilshire Oil Company at Los Angeles, according to an announcement by Maurice A. Machris, executive vice president of the company. Shibe's appointment fills the vacancies left by the death of W. D. Smith last November.

Funnier than ever before was the consensus of the Western Oil and Gas Association's 1951 wildcat drama at the Los Angeles Biltmore. Bill Geis, director; Howard Pyle, assistant director; and Dale Russell and Dick Clark, properties, did an excellent job in arranging the show. The cast included such oil-famed names as Bill Pemberton, Wendell Jones, Joe Jensen, Bob Minckler, Frank Morgan, Ernie Pyles, Torrey Webb, Sam Bowlby, Dave Staples, Russ Green, Gene Starr, Cy Rubel, Ed Hamner, Dave Faulkner and Jud Hillman.

Jay Hall, News, Dallas, has been elected president of the Association of Petroleum writers for the ensuing year. Ed C. Lloyd, Examiner, Los Angeles, was named a director.

LeBus International Engineers Formed

F. L. LeBus, Sr., owner and co-owner of many patents and patents pending on grooving for hoisting drums and Wire Line Spooling methods, has announced the formation of LeBus International Engineers, Ltd. Executive offices for the new company have been opened at 300 Wichita National Bank Building, Wichita Falls, Texas.

LeBus International Engineers, Ltd., was organized exclusively for the purpose of promotion and development of Wire Line Spooling methods. Sales and Service for the new firm will be on an International scope. The LeBus Rotary Tool Works, Inc., Longview, Texas, will continue to manufacture all materials. Earl J. Calk will act as Sales Manager and F. L. LeBus, Jr. will operate out of the Longview office on Sales and Material Distribution. The new company will retain the same Sales organization that previously sold this type of service for the LeBus Rotary Tool Works, Inc.

Employes of The Texas Company's Producing Department Laboratory, Signal Hill, California, were recently presented with an Honor Award in recognition of a 4-year operational period without a disabling injury.

The Signal Hill Laboratory has 36 employes and is engaged in technical service and research work for Texaco's Pacific Coast Division.

The presentation was made by K. C. Smith (left), Industrial Relations Office, to W. E. Escobar (right), Laboratory Foreman. Other employes shown are, left to right, R. E. Fluke, secretary, Safety Committee; J. F. Roberts, Safety Engineer; W. W. Robinson, Jr., Division Chief Chemist; and W. L. Hall, Chairman, Safety Committee.

Rocky Mountain NEWS

Colorado—Idaho—Montana—New Mexico—Utah—Wyoming—Western Canada

Unexpected discoveries continue to pop up in the wide open spaces of the Rocky Mountain region. The year 1951 witnessed the opening of a promising new oil province in the Williston Basin of North Dakota and eastern Montana. And while the oil spotlight continued to focus on this new area, Sinclair Oil and Gas slipped unobtrusively into the neighborhood of the once mighty Salt Creek field in central Wyoming and made an important strike, which ranks with the best finds of the year.

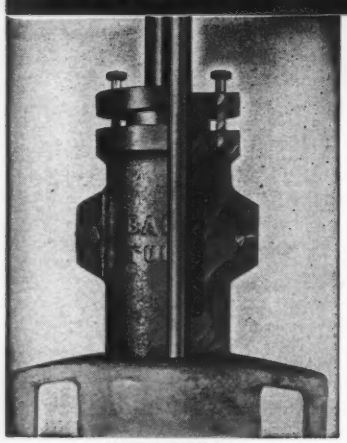
Meanwhile several major companies are gambling big stakes in expensive drilling operations to prove the big Uintah Basin of Utah; Ohio Oil and others are probing to granite for deeper production in the Julesburg Basin of western Nebraska and northeastern Colorado, and Pure Oil Co. may be on the verge of bringing in another world's record for deep production in central Wyoming.

Salt Creek, like many older fields, is well-ringed with dry holes. Oldtimers long ago gave up trying to extend the field—which is still in the 10,000 bbl. a day class. Now Sinclair has stirred up the whole area with a big strike immediately to the east of old Salt Creek—in section 10-40n-78w, Natrona County. The well was bottomed at 5962 ft. and completed as a dual producer from the Second Wall Creek and Lakota sands. Production gauge was 203 bbls. of 35 gravity oil in 21 hours, on swab, from the Lakota (5910-50 ft.) and 48 bbls. 37 gravity oil in 24 hours from the Wall Creek (4922-60 ft.). An offset was staked immediately to the discovery.

Two months ago, rumors of the oil find set off an intensive leasing activity in the area. Continental Oil is unitizing the Southwest Salt Creek area and plans a drilling campaign early in the coming year. The unit area embraces Twps. 38 and 39 in Range 80w.

Operators have realized suddenly that the entire area along the west side of the Powder River Basin has never been explored thoroughly.

Polish Rod Lubricator



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New fields like Sage Spring Creek, Sussex, Meadow Creek and South Cole Creek have emerged in the last few years. Several wildcats are now drilling in the general area. South of the Southwest Salt Creek area, Carter Oil is drilling a venture on the Burke ranch in section 36-37n-82w, while Anderson and Peterson are drilling an interesting wildcat in the North Casper Creek area.

Coincident with this new activity, the U. S. Navy has divulged location for a test to granite in the once notorious Teapot Naval Reserve. R. L. Manning has the contract to drill the first well in section 10-38n-78w. In the quarter century following the Teapot Dome scandal, there has been no drilling on the naval reserve. The discovery was drilled in 1922. Approximately 3,500,000 bbls. of oil were produced from 60 wells on the reserve prior to the shutdown in 1926. The deepest of these, however, went only to the Frontier sand around 3600 ft., and the deeper production possibilities have been a subject of conjecture ever since that time. Some geologists have contended that the Salt Creek field drained Teapot sands. More recently, however, discoveries on the eastern border of the reserve have revived hopes that the Teapot still holds a substantial reserve. Outcome of the current drilling will attract national interest.

In the busy Julesburg Basin, Ohio Oil Co. took time out to start a deep test to granite in the Huntsman, Nebr. pool. The No. 3 Pahl well, suspended in the Dakota at 4733 ft., will be deepened to the basement rocks. When Ohio took the lid off the Julesburg Basin two and a half years ago, the possibilities of deep production were high in drilling plans. These were neglected, however, in the rush to develop production from Upper Cretaceous sands.

Six new wildcats started in the Julesburg Basin in December. Shamrock Oil and Gas entered the current play with a venture in Logan County, Colorado. Earl K. Carey Drilling Co. staked a 7,000 ft. test northeast of Greasewood in Morgan County. Deep Rock's 5200 ft. test to granite in Dundy County, Nebraska, is expected to furnish clues to deeper production possibilities in the Basin.

New drilling ventures are starting in eastern Montana, despite the approach of severe winter weather. Shell has started drilling its second wildcat in the Richey area of Montana, six miles southwest of the firm's recent discovery. The discovery has been dropping in production as water volume gains. Early in December it flowed 1656 bbls. oil in the initial 24 hours of testing thru tubing. Later it tested 395 bbls. of fluid thru 16/64 inch choke, cutting 12 to 35 percent water in 24 hours. A still later test gauged 250 bbls. of fluid with 50 bbls. of salt water in 22 hours thru choke. It was the first well to find oil in the Montana portion of the Williston Basin, with the pay located in the Charles formation of Upper Mississippian age.

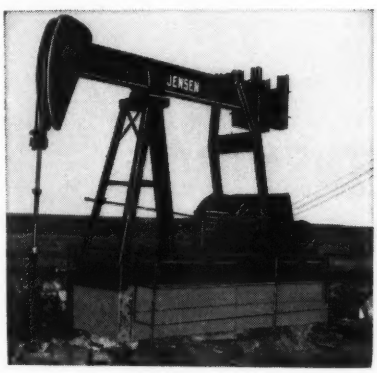
Meanwhile Shell's Pine Unit wildcat in Wibaux County, Montana, flowed and swabbed an average of five barrels of oil per hour from Ordovician. It is still in the testing stage.

The entire story has not been told on Amerada's initial discovery for the Williston Basin at Beaver Lodge, North Dakota. Initially the venture was completed as a Devonian discovery at 11,955 ft. It is now testing oil from the Madison, and has been plugged back to 8560 ft. for casing perforation. Elsewhere in North Dakota, the California Co. was coring below 6330 ft. at its No. 1 Thompson wildcat east of the Nesson anticline in Bottineau County, probably near the base of the Mississippian.

Interest centered on lease sales offering a quarter million acres in North and South Dakota in December. Sales were scheduled at Bismark and Pierre on state lands thru the Williston Basin.

Another shot at the world's record for deep production is being taken by Pure Oil Co. in the West Poison Spider field west of Casper, Wyo. The company ran casing at No. 3 Unit, which was bottomed at 16,079 ft. in the Lakota sand. Presumably saturation was cored from this sand, which was reported as being more porous than the Frontier sand already productive in the field. Three years ago Pure Oil Co. set a world record for deep production at the No. 1 Unit, which went to 14,309 ft. in the Frontier. No. 2 Unit later found production in the higher Mesa Verde a little under 10,000 ft. Production has brought waxing problems.

The picture in Utah continues bright with Stanolind Oil and Gas completing the outline of its Asphalt Creek block embracing 23,250 acres in southern Uintah County. Rig is up for the initial venture at No. 1 Wall in section 24-11s-22e. which will go to the Basal Green River formation around 5500 ft. A little to the east, Conoco is drilling its Oil Springs wildcat.



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Recently Deep Well Corp. of California farmed out a spread from the Mid-Continent Petroleum in the South Myrton area of Southern Duchesne County, where a wildcat, No. 1 Lambert in sec. 22-8s-16e, will drill to Basal Green River. Cities Service is preparing to drill a farmout from Sunoco at Peters Point in section 6-13s-17e, following extensive geophysical work in the area.

In Colorado, Amerada Petroleum made a small gas discovery in the High Line Canal area of Mesa County. The well flowed 1,400,000 cubic ft. of gas daily after shooting the Dakota sand, and was completed at a plug back depth of 2024 ft. It is located southeast of Amerada's discovery in Asbury Creek, completed earlier this year as a shut-in gas well flowing two million cubic feet daily from the Dakota sand.

Husky Oil Co. of Cody, Wyo., is becoming more active in the Colorado play, having made a deal with Zimith Oil and G. L. Wicklund of Greeley for 1200 acres in the Nav area of Weld County. Here Zimith is working on completion of the No. 1 Nay, which tested oil in the "J' sand recently.

In New Mexico, Lowery et al of Albuquerque are continuing a rapid development program in the South Largo field of Rio Arriba County. Sizable oil and gas reserves are shaping up from a series of Pictured Cliffs and Tocito formation wells. A recent Tocito completion made 265 bbls. oil on 20 hours swabbing, and is expected to flow at least 400 bbls. oil daily on production.

Stanolind is coring below 7435 ft. at the Kutz Fulcher well in San Juan County, the firm's second Dakota test in the area.

Nevada remains in the drilling picture, with Continental and Standard of California drilling below 8450 ft. at the Summit Springs wildcat in White Pine County. It is third in a series of tests by these operators in the Basin and Range province of western Utah and eastern Nevada.

Shell hasn't given up in South Dakota. The firm spudded a venture in Carson County (11-22n-19e) east of the recent deep abandonment, which went to pre-Cambrian at 9348 ft.

In the realm of financial interest, it was reported that Great Lakes Oil and Chemical Co. of Grand Rapids, Michigan—a newcomer in the Rocky Mountain field—had acquired 90 percent of the stock of Olds Oil Corp. of Casper. Olds, headed by E. O. Olds, has kept five rotary rigs active in the region during the past several years and has production in the Mush Creek and Skull Creek fields of northeastern Wyoming. Great Lakes Petroleum recently acquired lease holdings in central Wyoming, on the west flank of the Powder River Basin — where five shallow dusters were drilled this year.

British American has opened new exploration offices in Denver at the Colorado National Bank Building. A. W. (Bill) Cullen is the division exploration head.

Frank C. Barnes, formerly with the New Mexico Oil Commission, has opened consulting offices in Santa Fe, with particular emphasis on the San Juan Basin.

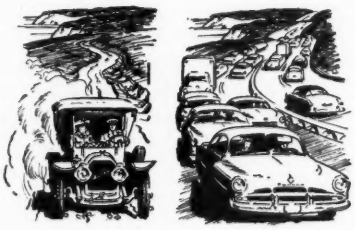
Members of the Denver Geophysical Society head Kenneth E. Burg, vice president of Geophysical Service, Inc., give a paper on "Exploration Problems of the Williston Basin," at a meeting in the Petroleum Club Dec. 10. The paper was illustrated with slides and covered interesting geological and geophysical aspects of the new oil province.

Another interesting talk on the Williston Basin, particularly the Devonian stratigraphy, was given by Dr. John M. Andichuk, Gulf Oil Corp. geologist from Billings, at a meeting of the Wyoming Geological association in Casper Dec. 12. Dr. Andichuk's doctor's thesis at Northwestern University was based on this subject.

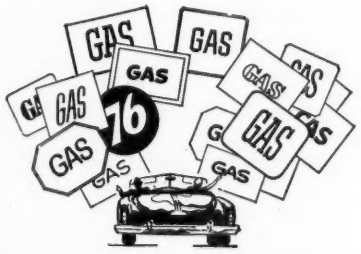
Continuation of progress on the Platte Pipe Line from the Rocky Mountain region to the midwest was counted on as a result of Washington reports that the line had won priorities assistance for steel from the Petroleum Administration for Defense. Completion of the new artery is expected in the third quarter of 1952. Additional booster stations are planned for the line, to give it a daily capacity of 100,000 bbls. of crude. Total requirements for the completion of the project were set at 134,736 tons.

The bigger we grow the smaller we get!

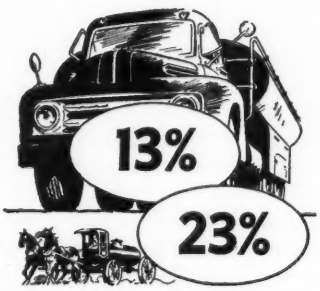
1. Today, Union Oil Company does an annual business of over $250 million. This seems like a whale of a lot of business when you consider that back in 1910 (when we were 20 years old) we did an annual business of $12 million.



2. But back in 1910 there were only 468,500 cars in the U. S. and the average American used only one quart of petroleum products a day. Today there are over 44 million cars in the U. S. and the average American uses 1 9/10 gallons of petroleum products every day.



3. To supply this steadily increasing demand for petroleum products, long-established companies had to expand and many new companies have entered the field. As a result, *competition* has increased. In 1951 there were 4⅓ times as many oil companies in the U. S. as there were in 1910—all in competition for your business.



4. Today we are among the nation's 100 largest corporations and are 20 times as big as we were in 1910. But here's the important point: 42 years ago we did about *23%* of the oil business in the 5 western states—our major marketing area. Today, in spite of our growth, we do only *13%* of the oil business in the 5 western states.

5. In view of all this, it seems rather strange to hear so much talk about *bigness*. Of course, individual oil companies are bigger. They have to be bigger to serve the bigger need. But the vast majority aren't as big *in proportion to the total business* as they were 42 years ago. In fact, they are getting "*smaller*" all the time.

UNION OIL COMPANY

OF CALIFORNIA

INCORPORATED IN CALIFORNIA, OCTOBER 17, 1890

This series, sponsored by the people of Union Oil Company, is dedicated to a discussion of how and why American business functions. We hope you'll feel free to send in any suggestions or criticisms you have to offer. Write: The President, Union Oil Company, Union Oil Building, Los Angeles 17, Calif.

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With Drilling Contractors

The City of Newport Beach in Orange County has objected formally to the inclusion of the West Newport field in the classification of "proven" oil fields, under the County Planning Commission's new zoning proposal. Objection is based upon the new planning whereby the planning commission will not require public hearings on variance drilling applications in established oil fields. This was laid before the Orange County Board of Supervisors by John J. Sailors, city administrator. It was explained that the City of Newport Beach desires to know when wells are to be drilled in that part of the West Newport field in which the city's objection particularly applies. The area in question, bounded by the Santa Ana River, 19th street, Whittier avenue and the Newport Beach city limit, is almost entirely surrounded by city territory.

Shamrock Drilling Company of Los Angeles, a leading drilling contractor, is working away with an interesting wildcat well for Standard of California in an area far from production in Utah. The well is emblazoned with the colorful name of Desolation Unit No. 1 and is in the Confusion Mountain area of the Mormon State. Drill site is about 115 miles from the town of Delta and 92 miles from Ely, Nev. Normal drilling activities are persisting despite subzero temperatures and much snow. In order that the drilling crew have every comfort, Shamrock has fitted the camp with more than half a dozen trailers separately designed for sleeping, the galley, dining and other activities. The camp also features showers with all the hot water any one could wish for. George McCarthy, head of Shamrock, is one of the most popular members of the oil fraternity and he has always been in the forefront of all campaigns fostering the best interest of the petroleum industry as a whole.

Tracy Harkness Drilling Company of Bakersfield has completed Bysshe & Barratt's Bardsdale No. 1 on Sec. 7-3n-19w for a new fault block find at Bardsdale, Ventura County. Initial flow through a 28/64-in. choke from a total depth of 7538 ft. was at the rate of 250 barrels of 32 gravity oil a day, cutting 10 per cent and cleaning up. Production is some 500 ft. lower than Elkin wells to the west and is in the Eocene sand. Offset ground is held by Shell, Texaco and Cleveland Oil. Considerable new activity in the area is anticipated.

Thomas P. Pike Drilling Company of Los Angeles is drilling a well on contract for Mendota Oil Company in the Midland, Tex., area. The well, Judkins No. 13, at last reports was drilling below 5400 ft. Joe Smith is pusher in charge of operations.

Brown Drilling Company of Long Beach held its quarterly toolpushers' meeting in Bakersfield. The company reported that 28 were in attendance in addition to several guests. Guests were H. Baer, Texas Company, George Heuermann, Anglo-California Bank, San Francisco, and M. H. Stansbury, Stansbury, Inc., Bakersfield. Baer, Texaco district superintendent, spoke on how the contractor looks to the company. Heuermann discussed the function of the bank in relation to the individual. He briefly summarized each service of the bank and he suggested that everyone should become more acquainted with the functions of banks.

John W. Thomas, California-Texas Oil Company, Ltd., New York, was a recent visitor at the head office of Brown Drilling Company at Long Beach. Thomas has been on an extended trip across the country.

The country's contract drilling industry currently is drilling wells at an estimated rate of 42,200 annually, with total footage approximately 150,000,000. It appears that the oil industry somehow will work out the critical materials shortages problem without too much difficulty. No great trouble is generally anticipated unless there is all-out war.

Bolsa Chica Oil Corporation's new pool discovery well east of Del Rey was drilled under contract by Fowler Drilling Company. The well, Kidson No. 1-1, is on Sec. 22-2s-15w. Geology was worked out by Bolsa Chica's William F. Wrath.

By drilling the DeWitt Langford, Operator, Bishop No. 1 on Sec. 24-28s-28e in the Sharktooth area of Kern County, Miller & York scored a new discovery at a plugged depth of 2267 ft. Total bottom is 2600 ft. Initial yield on the pump was 100 barrels of 14.3 gravity oil a day. The Pyramid Hills formation was topped at 2240 ft. Miller & York also has extended production in the Fruitvale field some 300 ft. north with Norbel Oil Company's Ansolabehere test on Sec. 14-29s-27e. The well was drilled to 2910 feet and was set with 7-in. casing on top of oil sand at 2880 ft.

There is an oil boom in Germany, according to news from abroad. New wells are being brought to completion in all 11 states. German wells will yield a total of 1,400,000 tons of oil during 1951 and probably as much as 2,000,000 by 1953.

Fluor Forms Foreign Subsidiary

The Fluor Corporation, Ltd., of Los Angeles, has completed the formation of a wholly-owned foreign subsidiary for the purpose of doing construction work in foreign countries, it was announced recently by D. W. Darnell, Fluor's president.

The new subsidiary, known as Middle-East Fluor, S. A., commenced operations in Saudi Arabia on Jan. 1, 1952, under contracts that were signed with the Arabian American Oil Company. Offices are located at 16A Avenue Central, Panama City, R. P., and Dhahran, Saudi Arabia.

According to Darnell, the volume of work to be processed by the new company should be substantial due to an extensive expansion program now under way by the Arabian American Oil Company which will probably take from three to five years to complete. It is anticipated that a maximum of 500 American supervisors and technicians will be employed on these contracts, in addition to the local personnel required to staff the operations.

J. S. Fluor, executive vice-president of the Fluor Corporation, who will also serve as president of Middle-East Fluor, S. A., said that all stock of the new company, which was incorporated under laws of the Republic of Panama, will be held by the parent company.

Other officers and directors of the subsidiary residing in the metropolitan area include J. P. Wiseman, executive vice-president and director, Altadena; J. E. Winn, vice-president and director, Montebello; F. M. Stephens, secretary-treasurer, Monterey Park; F. E. Fischer, assistant secretary-treasurer, Arcadia; and J. F. Gardner, director, Whittier.

Frank Morgan, Richfield vice president and president of the American Association of Petroleum Geologists, related that his recent tour of Venezuela was most interesting. While there, Frank addressed several geological organizations.

Richard K. Jamison is the new general manager of Harbor Refining Company at Long Beach. He succeeds the late William F. Barshfield.

Exploration Costs Exceed $113,000,000

Standard Oil of California expended more than $113,000,000 for exploration and development work during 1951. This huge outlay financed a widespread search for oil in the West Coast, Rocky Mountain, Texas and Gulf Coast areas and in Canada and Venezuela. It also made possible an important contribution of an increase of 20,000 barrels of crude oil a day above the company's average output in the United States in 1950. T. S. Petersen, Standard president, cited these facts pertinent to the company's persistent effort to meet sharply higher demand for petroleum products by both the military and the civilian consumers. Standard and its subsidiary organizations accounted for some 450 exploratory and development wells during the year. In addition these companies campaigned strenuously on geological and geophysical surveys. Among Standard's discovery during the year were new oil pools in Utah, Louisiana and Texas. Completed this year have been major refining plant expansions both on the West and East Coasts and in the Intermountain region. The Standard executive made known that to meet military requirements during the past year the company has approximately doubled output of high test aviation gasoline. "This," he said, "has been made available to the military and civilian air lines for use in the Pacific airlift. In addition, large quantities of jet fuels, motor gasoline, Navy Diesel fuel and Navy special fuel have been manufactured. At the same time consumption by our civilian customers of all major products has increase materially." At Perth Amboy, N. J., completion of a catalytic cracker and other facilities added 35,000 barrels daily to the plant capacity of California Refining Company, a subsidiary. At Salt Lake City, another new catalytic cracking unit went on stream to aid increased crude handling capacity from 18,000 to 27,000 barrels a day. Mr. Petersen also disclosed that a similar unit now is under construction at El Paso for another subsidiary, Standard Oil Company of Texas. He called attention to the 50,000-barrels residuum stripper finished at Richmond. Construction has begun at El Segundo on a benzene plant expected to cost upwards of $10,000,000, he pointed out.

California oilmen have been watching with interest Tom Hawksworth Oil & Gas Development Company's Hawksworth No. 4 test well on a farmout from Union Oil of California in the Ocean City area, Grays Harbor County, Washington. The latest information from up there disclosed that the final touch to the venture had been applied at a total depth of 3714 ft., with initial flow at the rate of 35 barrels of condensate and 300,000 cubic ft. of gas daily.

About Engines

(Continued from Page 7)

der the high temperature methods just described, both these expenses are eliminated.

Cooling and heating are both automatic and more even than before. And better yet, the initial costs are competitive.

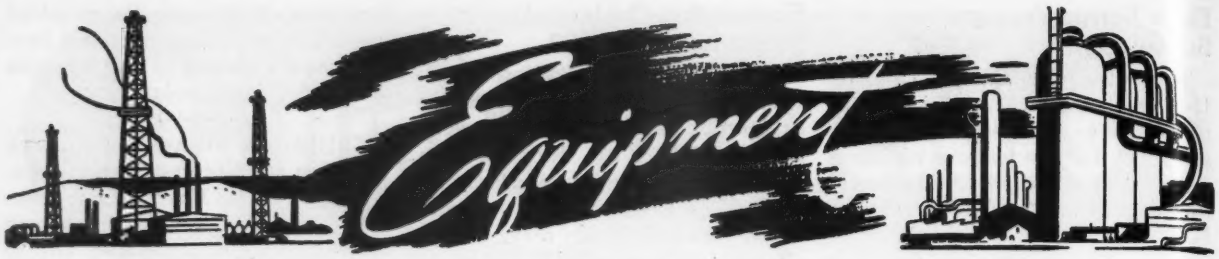
We are getting something for nothing and boy, does management like it.

As time goes on and the value of waste heat recovery becomes more widely recognized more and more jobs will be found for it to do. In my estimation, engine men in the oil industry will be demonstrating long range vision by working to improve and widen the use of hi-heat operation with its attendant benefits. Increased costs of fuel gas and labor is steadily bringing our engine operating costs closer to that of electric motors.

Inefficient engine operation aggravates this condition.

An operator of a few pumping engines for a major oil company recently made the statement that "twenty horse power is the dividing line between gas engines and electric motors." A man who can not do better than that is a damn poor engine operator. But just the same, we do have them. The more prime movers we can get into the high thermal efficiency bracket, the easier it is to hold the economical dividing line down to the five to seven BHP range.

Presented at the 26th Annual Meeting, California Natural Gasoline Association.



Continental to Install UOP Platforming Unit

Work will begin shortly on the installation of a UOP Platforming Unit at Continental Oil Company's Lake Charles, Louisiana refinery. Announcement of the agreement was made from Continental's offices at Ponca City, Oklahoma by H. G. Osborn, vice president in charge of manufacturing.

The unit will have a daily charge capacity of 5,000 barrels for aromatics production or 6,000 barrels daily for production of motor fuel.

Continental will process a charge stock of approximately 150-220 degree boiling range Coastal straight run gasoline in its benzene and toluene manufacture and a 250-400 degree cut for motor fuel production.

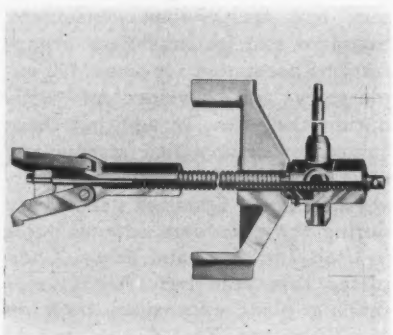
The new unit will make a material contribution toward easing the benzene-toluene shortage, Mr. Osborn said, while at the same time being capable of producing high quality motor fuel, if this is desired.

Design of the Continental Platforming unit will be by Universal Oil Products Company, Chicago, discoverers and developers of the UOP Platforming process. Construction will be hand'ed by Procon Incorporated, Chicago.

International Cementers, Inc., Now BJ Service, Inc.

E. S. Dulin, President of Byron Jackson Co., announces that at a recently held directors meeting of International Cementers, Inc., (now a wholly owned subsidiary), the name was changed to BJ Service, Inc., and as soon as necessary permission is obtained from the various states in which BJ Service, Inc., is qualified, all operations will hereafter be conducted under the new name. Steps were also taken to amalgamate certain oilfield services now operated as a division of Byron Jackson Co. with the new service subsidiary.

BJ Service, Inc., will open new service facilities at Seagraves, Texas, on December 1 and at Rankin, Texas, on or about January 1. A service station was recently opened at Williston, North Dakota, in order to render service to the new Williston Basin area.



Grant liner Pullers are designed to remove liners from slush, feed-water, or any other pumps equipped with removable liners. As may be seen by the above illustration, exclusive of the yoke, the few parts of which each puller is comprised are permanently integrated into a rugged, serviceable, and durable unit. There is no need for a multiplicity of heads, a fact which eliminates the delays ordinarily occasioned by misplacement or loss of loose parts. One yoke covers the entire range of sizes for each puller, and the yoke features an open slot which makes it unnecessary to run the nut the full length of the screw each time a liner is pulled. The tool is so constructed also that no strength is sacrificed in achieving the foregoing advantage. The nut assembly incorporates a roller thrust bearing with a reinforcing support which prevents distortion of the bearing in the section of the yoke through which the screw travels. The Grant Liner Puller is available in two sizes handling all liners from 3½ to 9-inch.

New Refining Project Launched by G.P.

A refinery improvement project designed to increase production of critically-needed aviation fuel components has been launched by the General Petroleum Corporation at its Torrance (Calif.) refinery. The project will cost over $500,000.

A key part of the new facilities is a giant distillation tower, ten feet in diameter and 157 feet high. The tower was originally built during World War II as a segment of a complete aviation gasoline refining plant which was to be shipped to Soviet Russia under Lend Lease. The shipment was cancelled in 1945.

General Petroleum engineers, faced with current steel shortages, located the tower and, through design adaptations, made possible its use in the new Torrance project. Their ingenuity saved a total of 200 tons of scarce steel.

Contract for the erection of the new facilities has been awarded to J. B. Gill Co. Completion is scheduled for June, 1952.

New Cooling and Lubricating Agency Available

"LUBRI-CUT," a new special cooling and lubricating agent that triples production output, at the same time increasing the life of taps, drills and cutting tools up to 12 times, is announced by the Tap & Drill E-Z Corp., 11033 Hawthorne Blvd., Inglewood, California.

This new fire-resistant, patented compound is said to be free from all abrasives and acids and is composed of special cooling and lubricating agents that cling to the tool and give these sensational results in high speed drilling, blind hole tapping, tapping, counter sinking, profile routing, swedging, etc.

Manufacturer states that "Lubri-Cut," available in both paste and semi-paste form permits tolerances in the millionths and is equally efficient when used on hard and soft ferrous and non-ferrous metals, on plastics or on glass.

For free samples and complete information, write Tap & Drill E-Z Corp., 11033 Hawthorne Blvd., Inglewood, California.

Baroid Opens Headquarters In Houston

The official opening in Houston of new administrative headquarters of the Baroid Sales Division, National Lead Company, was celebrated by over 1500 oilmen on November 16th. The Baroid organization will direct drilling mud operations from the new building at 2404 Danville St., Houston, Texas.

Guests attending the celebration were taken on guided tours of the new quarters. The building is located on a four-acre tract and has been designed to provide greater service facilities for Baroid's growing operations. A two-story structure of stone, brick, and glass, the building has a 224-foot frontage on Danville Street, on Houston's southwest side.

The new building contains extensive laboratory facilities, for organic and analytical chemistry, mud analysis, and instrument design; also, foundry and training laboratories, mills for grinding raw materials, complete photographic and printing facilities, together with a technical library directed by professional librarian. Ultra-modern facilities have been provided for order-handling, stock records, and other aspects of customer service.

George L. Ratcliffe, General Manager, stated that in addition to headquarters in Houston, division headquarters are also maintained in Los Angeles and Tulsa. Field service centers are operating now in all leading oil fields. The firm's products are sold through 500 distributors, providing rush service in every active drilling area. Over 150 Baroid field service engineers in specially equipped cars carry Baroid service direct to oil fields of the United States and Canada.

Mr. J. A. Martino, President of National Lead Company, was on hand for the ceremony, accompanied by other top executives of National Lead Company. He stated, "About 165 of our people will now be working together in the new building—technicians and engineers, scientists in the research department, the sales staff when not on the road, as well as clerical and administrative personnel."

A recognized leader in the oil well drilling fluid industry, Baroid has served oilmen since 1926. Their present service includes a complete line of drilling mud products, mud testing equipment, well logging service, and complete field and laboratory engineering services.

Baroid is the world's largest producer of bentonite, the raw material for Aquagel, with large properties at Colony and Clay Spur, Wyoming, and a mine at Hector, California. Baroid also has become the leading producer of barytes, the raw material for Baroid, with mines and plants at Fountain Farm, Missouri; Magnet Cove, Arkansas; Merced, California; and Battle Mountain, Nevada. There are also extensive processing plants at Texarkana and at Houston.

New main offices of Baroid Sales Division, National Lead Co., at Houston, Texas.

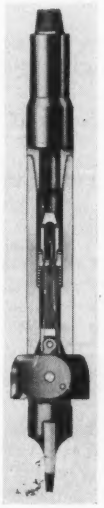
New BS&B Stabilizer Bulletin

Black, Sivalls & Bryson, Inc., announces the publication of a 12 page bulletin on the New BS&B Stabilizer. Arranged for easy reading and written in non-technical language, the 2 color bulletin is fully illustrated with diagrammatic drawings and charts.

The BS&B Stabiloil process consists of a stabilizer-reboiler package designed to increase recovery and minimize waste from separation equipment, particularly low temperature separation processes. By fractionating propanes and lighter out of the liquids, vapor losses in tanks and pipeline are practically eliminated. This equipment will increase yields from most low temperature as well as many normal stage separation operations to show reasonable payout. Control equipment is easy to understand and operate.

This free bulletin will be furnished upon request. Address your letters to Black, Sivalls & Bryson, Inc., Advertising and Sales Promotion Department, 7500 East 12th Street, Kansas City 3, Missouri.

Grant Introduces Improved Wall Scraper



The Grant hydraulic expansion wall scraper is a well engineered, two-bladed tool that has many important applications. It may be used to scrape the face of a producing formation and facilitate fluid flow into the hole; to open short, tight spots before running casing; to form enlarged pockets for gravel packing; and to increase the diameter of the hole at cementing points to improve the efficiency of the cement job. For directional drilling the wall scraper can be provided with a bull nose that extends well below the blade slot. This helps to stabilize the tool when in operation. A bottom hole wall scraper with body terminating at the lower end of the blade slot is available for enlarging the last few feet of hole. The scraper blades in both tools are extended by the pressure of the circulating fluid which is controlled at the pumps by the driller.

Next year the United States oil industry may set a goal of 50,000 wells. This would call for 575,000 tons of tubular goods quarterly, which is some 75,000 tons more than is nof available.

THIS

LAUGH OFF!!

It so happened that two salesmen travelling together had trouble on a lonely road and it was necessary to stay at the first farm house all night. Instead of finding the farmer, they discovered he had died a year previous, leaving a beautiful young widow.

She welcomed them and asked that they use the spare room upstairs, as her bedroom occupied the first floor.

The next morning she prepared a fine breakfast and after her refusal of any money the two salesmen departed. Five months later they were discussing this particular night and one asked the other:

"Say, you didn't by any chance sneak downstairs that night, did you?"

The other one grinned and said, "Yeah, I sure did."

"Well, you didn't by any chance tell her you were me, did you?"

"Yes, I did and I'm sorry," the other one replied.

"Well, don't be. I just got a letter from her attorney today. She died last week and left her farm to me."

Sailor: "How about some real old-fashioned lovin', baby?"

Gal: "Okay; I'll call grandma."

A young woman took a job as a baby sitter, then suddenly quit.

When asked why she resigned, she replied. "Had to. Backward child; forward father."

Johnny giggled when the teacher read the story of a man who swam a river three times before breakfast.

"You do not doubt that a strong swimmer could do that, do you?"

"No, mam," replied Johnny, "but I wonder why he didn't make it four times and get back to the side where his clothes were!"

Opening remark of a political speaker: "I'm very happy to see this dense crowd here tonight."

Voice from back seat: "Well, don't be too damned happy. Some of us aren't as dense as you think."

First man: "My wife talks to herself."

Second man: "Mine does too, only she doesn't know it. She thinks I'm listening."

The age of discretion comes when you are too young to die, and to old to have any fun.

"YOU BOYS EVER THINK OF USING AN AMERICAN-NATIONAL LINE HEATER?"

Pipe-line superintendents, foremen, engineers are nuts about the way American National Line Heaters make oil, gas, water flow like crazy. American's service engineers are ready to help you boost production and save money 24 hours a day. Call American Pipe Steel Corporation, 2201 W. Commonwealth Ave., Alhambra, Calif. CUmberland 3-2181. ATlantic 2-3115. U.S. Highway 99 & Casa Loma Dr., *Bakersfield:* phone 4-9877.

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Latest News About New Tools, Techniques and Services

SAVE TIME, MONEY and PIPE

With McCullough Jet Back-Off Tool or String Shot Service and the One and Only Magna-Tector!

Pipe is scarce and rig time is costly. What could be more economical than backing-off the pipe, recovering all free pipe above the stuck point in one piece, and getting it done in a fraction of the time?

Yet there are limitations in the use of only ONE back-off tool in attempting to free stuck drill pipe, drill collars, subs, casing, tubing and wash pipe. NO ONE TOOL can accomplish EVERY back-off job. But there are TWO back-off tools and between the two, EVERY TYPE of back-off job CAN be accomplished!

That is why McCullough crews arrive at your well with both the McCullough Jet Back-Off Tool and String Shot. These tools plus the McCullough Magna-Tector, that quickly and accurately locates the stuck point, represent an extremely versatile combination service designed to save you time, money and pipe.

These are NOT mechanical tools or fishing tools. They are progressive tools, electronically controlled for accuracy and speed. They are responsible for the sharp decline in fishing in recent years, permitting wells to be drilled faster—saving oil operators thousands of dollars!

HOW YOU SAVE TIME, MONEY AND PIPE

1. TIME SAVER

a. Accuracy of the McCullough Magna-Tector in locating the stuck point consistently, eliminates unnecessary back-off shots.

b. New, high-temperature, high-pressure resistant detonators in the back-off tools eliminate mis-runs.

c. These electric wire line tools are run into and out of the well in a fraction of the time required with mechanical cutters.

d. In addition they are electronically controlled permitting greater speed and accuracy than ordinary electric wire line tools.

e. Electronics also provide MORE information about conditions in the well—locating collars, tight places, fluid level, etc., both audibly and visibly.

2. MONEY SAVER

a. McCullough Back-Off Service accomplishes ANY TYPE of back-off job, leaving the fish in good condition or subsequent operations.

c. McCullough Magna-Tector, many times, indicates that working and spotting oil will free the pipe, eliminating the need of backing-off and fishing.

d. Guesswork is eliminated.

3. PIPE SAVER

a. Eliminates cutting and damage to the pipe.

b. Permits recovery of all free pipe in one piece and the freeing and recovery of all stuck pipe in undamaged sections.

WHAT TO DO

When your pipe becomes stuck—CALL McCullough IMMEDIATELY! The McCullough Magna-Tector will quickly locate the lowest free point, the stuck point and do it accurately. Then the McCullough Back-Off Service will free all loose pipe in one piece—simplifying the fishing job.

Since time is important McCullough Back-Off Service is fast. All free pipe will be removed BEFORE it can stick further up the hole.

No two stuck pipe conditions are exactly alike. This is another reason why you NEED McCullough VERSATILE Back-Off Service. The complete equipment, the skill of experienced McCullough crews, and the special techniques they have devised WILL SAVE YOU TIME, MONEY AND PIPE!

Call McCULLOUGH

WRITE FOR THIS CATALOG

Pages 3228 to 3231 in the McCullough section of thte Composite Catalog describes these tools individually and in detail—with illustrations, specifications and operating data. Write for your free copy today.

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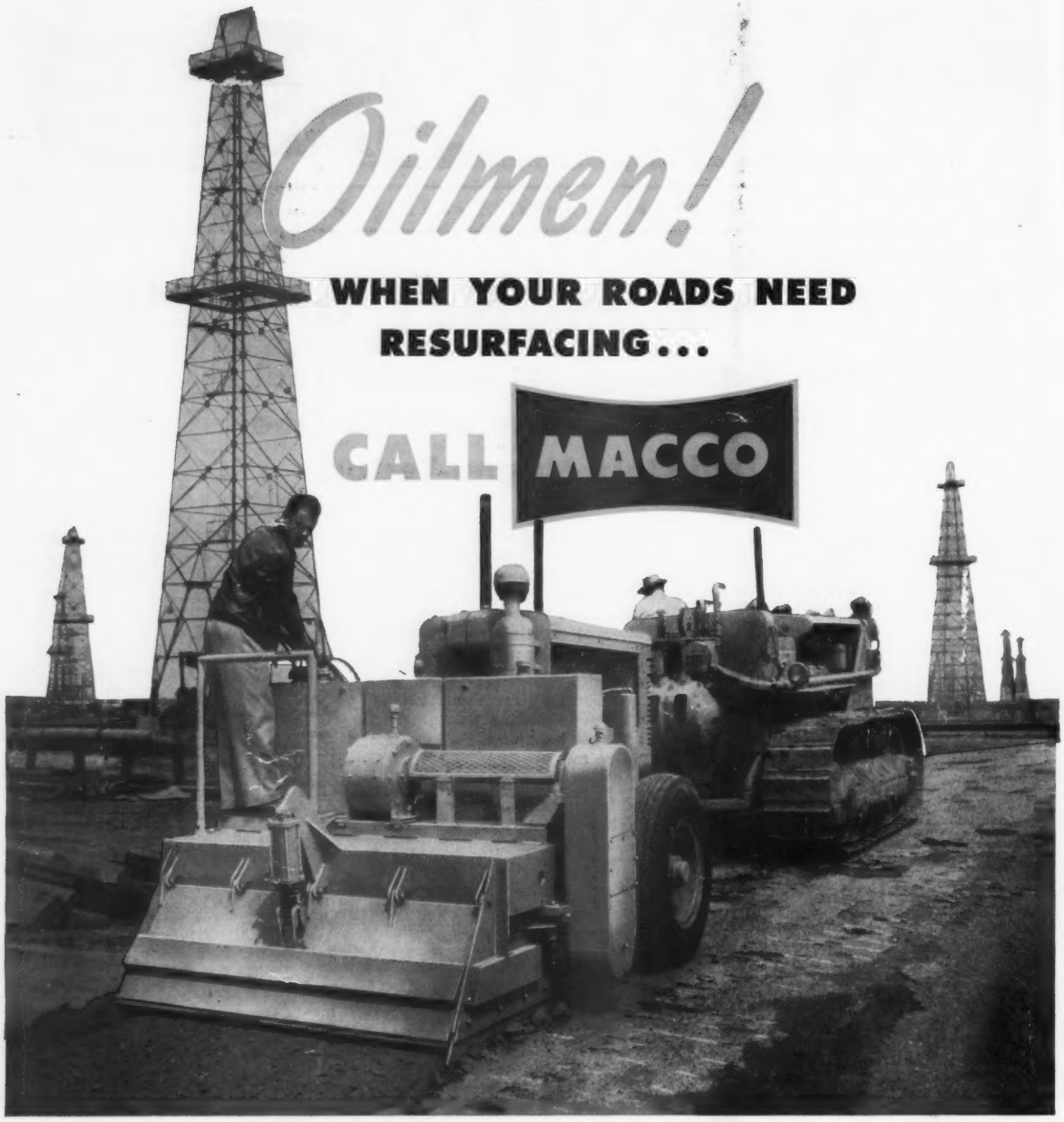

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